FINAL REPORT ON PHASE II OF THE SUBSURFACE INVESTIGATION AT TANKS 19T AND 20T AT THE C6 FACILITY REVISED 10 MAY 1988

Prepared for:

Douglas Aircraft Company 3855 Lakewood Boulevard Long Beach, California 90844

Prepared by:

Woodward-Clyde Consultants 203 North Golden Circle Drive Santa Ana, California 92705

Project No. 8741863D

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	OBJECTIVE	1
3.0	DESCRIPTION OF THE FIELD PROGRAM	2
4.0	RESULTS 4.1 Ground Water Elevations	5
5.0	CONCLUSIONS	8
	LIST OF FIGURES	
2	C6 Facility Location Map	1
	LIST OF TABLES	
2 (3)	Ground Water Elevation Data	7
	ITSW OF ADDENDIORS	

- A Field Procedures
- B Boring Logs
 C Analytical Results with Chain-of-Custody Forms

FINAL REPORT ON PHASE II OF THE SUBSURFACE INVESTIGATION AT TANKS 19T AND 20T AT THE C6 FACILITY

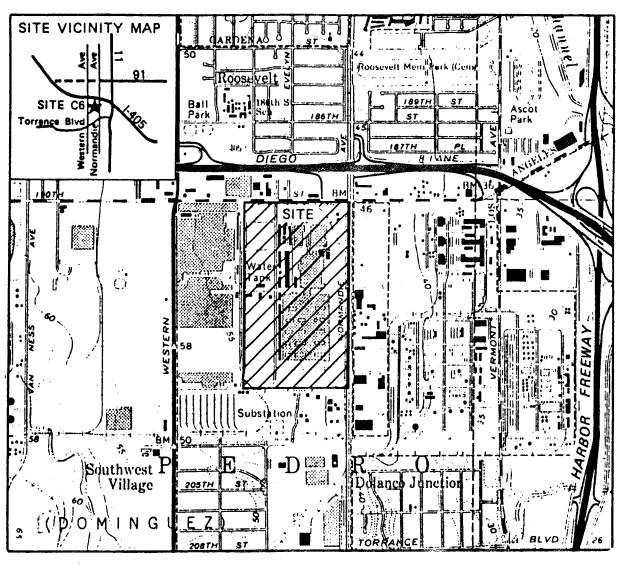
1.0 INTRODUCTION

report presents the results of Woodward-Clyde Consultants' Phase II subsurface investigation. investigation was performed to evaluate the source of elevated concentrations of organic compounds in the soil and ground water near tanks 19T and 20T at Douglas Aircraft Company's C6 facility in Los Angeles, California. location of the facility is shown on Figure 1.

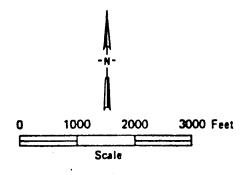
The results of the Phase Ι Underground Tank Investigation Report (June 1987) indicated the presence of petroleum hydrocarbons in the soil to a depth of 50 feet in the vicinity of tanks 19T and 20T. In addition, 1,1-dichloroethene, 1,1,1-trichloroethane, trichloroethene, and benzene was detected in water samples collected from observation Well WCC-1, which was installed at a location thought to be downgradient of the tanks. The locations of borings and wells installed during the Phase I work are shown on Figure 2.

2.0 OBJECTIVE

The objective of this phase of the investigation was to evaluate the source of organic compounds in the soil and ground water near tanks 19T and 20T.



C6 FACILITY



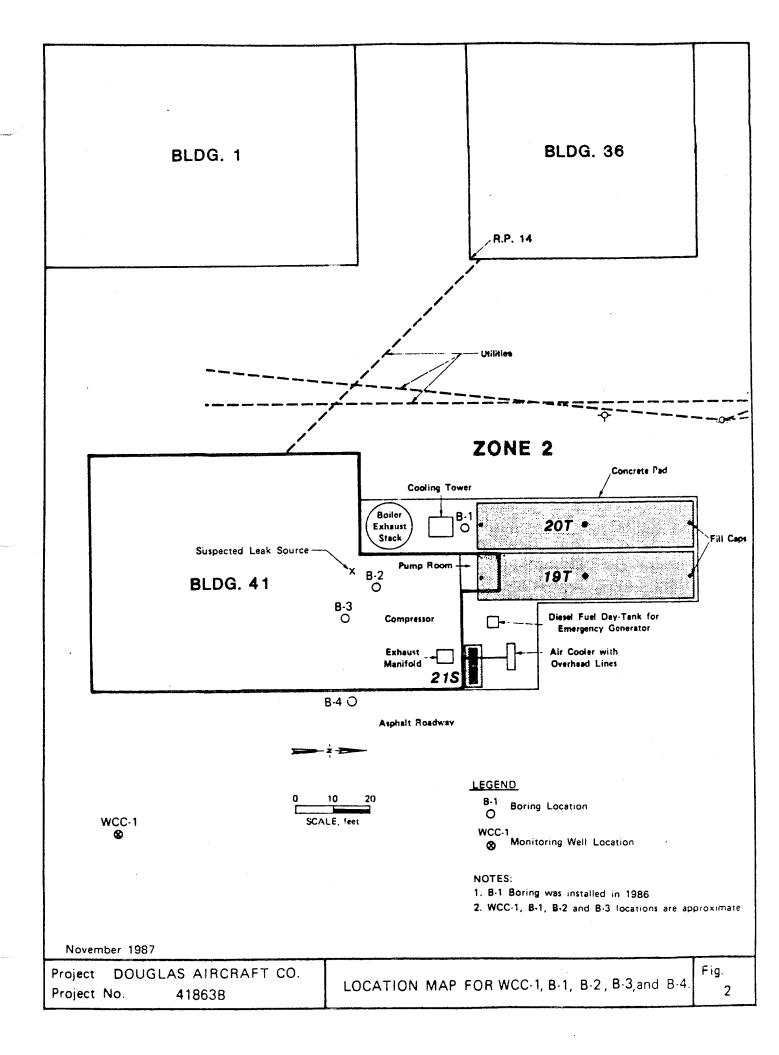
Project: DOUGLAS AIRCRAFT CO.

Project No.

41863D

C6 FACILITY LOCATION MAP

Fig.



3.0 DESCRIPTION OF THE FIELD PROGRAM

Phase II of the investigation was performed in the following manner. Four additional observation wells (WCC-2, WCC-3, WCC-4, and WCC-5) were installed approximately 90 to 91 feet in depth at the locations shown on Figure 3. An angle boring (B-4) was installed east of Building 41, see Figure 2. Details on the field procedures used during the installation of the wells are presented in Appendix A.

Well WCC-1 is located approximately 40 feet due east of Building 41, and was installed on 25 March 1987. Well WCC-1 is downgradient with respect to the location of tank clusters 19T, 20T, and 15T to 18T (see Figure 3).

Well WCC-2 is situated between buildings 61 and 34 and was installed on 28 October 1987. This well is considered to be the upgradient ground water observation well relative to the two tank clusters, and is approximately 400 feet northwest of tank cluster 15T to 18T.

Well WCC-3 is located at the northeast corner of Building 1, between the diesel tank clusters 19T, 20T, and the solvent tank cluster 15T to 18T. This well is also downgradient of solvent tanks 15T and 18T. Well WCC-3 was installed on 26 October 1987.

Well WCC-4 is approximately 100 feet southeast of Building 41, and is downgradient of tank clusters 19T, 20T, and 15T to 18T. This well (WCC-4) was installed on 27 October 1987.

BOE-C6-0091853

Well WCC-5 is located along the eastern property line of the Torrance (C6) facility and was installed on 24 November 1987. This well is considered to be a downgradient well, approximately 500 feet southeast of tank cluster 15T to 18T.

Boring B-4 was installed on May 26, 1987 by A & R Drilling Company (see Figure 2). This boring was installed to allow further evaluation of the vertical extent of petroleum hydrocarbons in the subsurface near tanks 19T and 20T. Borings B-1, B-2, and B-3 were installed during an earlier phase (Phase I) of this investigation. The analytical data obtained from soil samples collected from Borings B-1, B-2, and B-3 indicated that petroleum hydrocarbons were present to a depth of approximately 50 feet. The purpose of Boring B-4 was to evaluate how far the hydrocarbons had penetrated depth. 50-foot below this Boring B-4 was installed approximately 30 feet away from the suspected source of the release, and was slant drilled outside of the building at an angle of 26 degrees from vertical, in a westerly direction. This boring had to be installed outside the building because space restrictions prevented the use of a large drill rig inside the building. The boring was terminated at a vertical depth of about 54 feet.

Observation wells WCC-2, -3, and -4 were installed prior to WCC-5. The reason for installing wells WCC-2, -3, and -4 was to evaluate the lateral extent of organic compounds in the ground water and the gradient of ground water flow. Well WCC-5 was installed downgradient to evaluate whether organic compounds present in the ground water had reached the eastern site boundary. The placement of WCC-5 was based on the direction of the ground water gradient obtained from wells WCC-1, -2, -3, and -4. Well logs from observation wells WCC-1, -2, -3, -4, and -5 and Boring Logs for B-1, -2, -3, and -4 are presented in Appendix B.

On 30 October 1987, wells WCC-2, -3, and -4 were developed by Beylick Drilling Company of La Habra, California. Well WCC-5 was developed on 30 November 1987 by the same company. The observation wells were developed by a surge block and sand bailer method, and pumped with a submersible pump until the extracted water was free of visible suspended material. Water samples were collected and analyzed for volatile organics (EPA Method 8240) and petroleum hydrocarbons (EPA Method 8015). The well development and water sampling methods used are discussed in Appendix A.

Ground surface elevations of observation wells WCC-1, -2, -3, and -4 were surveyed on 3 November 1987 by Rattray and Associates, Inc. of Santa Ana, California. Observation well WCC-5 was installed on 24 November 1987 and was not surveyed. The survey provided the ground water elevation data required to evaluate the direction of the ground water gradient. The elevations of the well casings and ground water are summarized in Table 1.

4.0 RESULTS

4.1 Ground Water Elevations

Ground water elevation data collected on 13 November 1987 indicated that in the area defined by wells WCC-1, -2, -3, and -4, the elevation of ground water varies from -19.72 to -21.77 feet (Mean Sea Level [MSL]). These elevations indicate that the water table is over 19 feet below MSL. Water levels from wells completed in deeper aquifers in the vicinity of the site are also below MSL. Water level information from 1983 indicates that the water levels in these deeper aquifers are at approximately -60 feet MSL (Los Angeles Flood Control District). The low ground water levels found in the deep aquifers can be attributed to the

TABLE 1

TORRANCE C6 FACILITY

OBSERVATION WELL AND GROUNDWATER ELEVATIONS

WELL NO.	Date	Top of Casing		Depth to Water (ft)	Groundwater Elevation (MSL)
WCC-1	13-Nov-87	50.70		72.33	-21.63
WCC-2	13-Nov-87	50.59		70.31	-19.72
WCC-3	13-Nov-87	51.19		72.75	-21.56
WCC-4	13-Nov-87	49.69	11	71.46	-21.77

NOTE: Survey Conducted By Rattray And Associates, Inc. Santa Ana, California.

reduced natural ground water recharge caused by urbanization of the Los Angeles Basin and the heavy use of ground water. Channelizing the Los Angeles and San Gabriel rivers also has significantly reduced recharge to the ground water system. The reduced recharge and heavy ground water extraction have produced a ground water overdraft and a subsequent lowering of the water table. The ground water levels in the semi-perched aquifer beneath the facility are probably being influenced by the same factors as the deeper aquifers, resulting in a ground water elevation below MSL.

4.2 Ground Water Gradient

The ground water gradient calculated from ground water elevations taken 13 November 1987 indicated a gradient sloping from the northwest to the southeast. The direction of ground water flow is illustrated on Figure 3. This ground water gradient was calculated through the use of gradient triangulation between wells WCC-1, -2, -3, and -4. The ground water gradient illustrated in Figure 3 is based on data from wells WCC-1, -2, -3, and -4, and may not reflect ground water gradients at other locations at the C6 facility.

4.3 Well WCC-5 Location

The southeast gradient of ground water (discussed in Section 4.2) allowed observation Well WCC-5 to be located along the property line, downgradient of the tank clusters. The location of WCC-5 is shown on Figure 3. The location was selected based on the ground water gradient established from observation wells WCC-1, -2, -3, and -4, and assumes that hydrogeologic conditions are not significantly different in the proposed location of Well WCC-5. This observation well was installed, developed, and sampled in the same manner as wells WCC-1, -2, -3, and -4.

4.4 Analytical Results of Wells WCC-1, 2, 3, 4, and 5

Water samples were collected from observation Well WCC-1 on 27 March, 13 April, and 12 November 1987. Water samples were collected from WCC-2, -3, and -4 on 2 November and 12 November 1987. Observation Well WCC-5 was sampled on 30 November 1987 and 8 January 1988. The samples were analyzed for volatile organic compounds (EPA Method 8240) and petroleum hydrocarbons (EPA Method 8015) by West Coast Analytical Service, Inc. in Santa Fe Springs, California. Analytical results for the ground water samples are summarized in Table 2.

These analytical results show that the highest concentrations of organic compounds were found in the collected from Well WCC-3, immediately downgradient of the tank cluster 15T to 18T. Total volatile organic compound concentrations ranged from 292 to 365 parts-per-million The concentrations decrease as the downgradient distance from this area increases. Total volatile organic concentrations in WCC-1 ranged from 7,785 to 9,570 and in WCC-4 from 1,078 to 1,925 parts-per-billion (ppb). lower readings obtained from WCC-4, as compared to WCC-1, may indicate that WCC-4 is closer to the edge of the plume than WCC-1. Well WCC-2, the upgradient well, and WCC-5, the perimeter well, had very low concentrations of 1,1-DCE, 1,1,1-TCA, and TCE with total concentrations ranging from 7 to 30 ppb. Petroleum hydrocarbons were not detected in the water samples when analyzed by modified EPA Method 8015. These results indicate that the source of the organic compounds in the ground water was not the release from tanks 19T and 20T.

Soil samples were collected at depths of approximately 45, 55, 65, 75, and 80 feet from well locations WCC-2, -3, and -4 and at 45, 55, 65, and 75 feet from WCC-5. These soil

TABLE 2 GROUND WATER ANALYTICAL DATA Concentrations (ug/l)

		WCC-1		wcc			C-3		C-4	, MCC	
COMPOUNDS	3/27/87	4/13/87*	11/12/87	11/2/87	11/12/87	11/2/87	11/12/87	11/2/87	11/12/87	11/30/87	1/8/88
1,1-Dichloroethene (1,1-DCE)	2,800	3,700/2,500	3,000	5	2	38,000	88,000	360	1,200	7	4
1,1-Dichloroethane (1,1-DCA)		/	23			• •	1,000				÷ -
1,1,1-Trichloroethane (1,1,1-TCA)	300	260/120	160	5		110,000	54,000	14	35		
Trichloroethene (TCE)	4,600	5,500/3,600	5,200	14	4	10,000	11,000	700	690	1	10
4-Methyl-2-pentanone (MIBK)		/				54,000	70,000				
trans-1,2-dichloroethene (trans-1,2-DCE)		/	75				1,000	2			
Chloroform		/	39					2			
Toluene		/		6	1	80,000	140,000	+-		1	
Benzene	85	110/	160				••				
Detection level (ug/l)	50	50/50	20	1	1	1,000	1,000	1	10	1	1

BOE-C6-0091859

Duplicate sample also analyzedNot detected

samples were collected for Organic Vapor Analyzer (OVA) field headspace measurements and possible laboratory analysis. Refer to Appendix A for sampling methodology. Elevated OVA headspace readings and chemical odors were noted during the drilling of Well WCC-3. OVA measurements and their observed depths were recorded on the Boring Logs presented in Appendix B. The presence of odors and elevated OVA readings were not observed at wells WCC-1, WCC-2, WCC-4, and WCC-5. The 55 and 65 foot depth soil samples from Well WCC-3 were analyzed for the presence of volatile organics 8240). Concentrations of 1,1-dichloroethane (EPA Method chloride), 1,1-dichloroethene (methylene (1,1-DCE), 4-methyl-2-pentanone (MIBK), 1,1,1-trichloroethane (1,1,1-TCA), and toluene were found in the soil samples ranging from 8 to 590 ug/kg (ppb). Soil analytical results for WCC-3 are summarized in Table 3.

As a part of the underground tank management program at the C6 facility, soil borings were installed next to tanks and sumps to identify past or current leakage of chemicals from these storage units. Two borings were installed on August 1987, adjacent to tanks 15T and 17T. Elevated OVA headspace readings were found in both soil borings. analytical results indicated the presence of compounds in the soil next to the tanks. Soil samples from the boring next to Tank 15T (15TB) contained a variety of compounds in the parts-per-million (ppm) range, including some of those found in the ground water (1,1,1-TCA, MIBK, TCE, and toluene). Samples from the boring next to Tank 17T (17TB) contained only MIBK in the ppm range from the variety of compounds found in the ground water.

Boring Logs for tanks 15T and 17T are presented in Appendix B. Analytical results obtained from soil samples collected

TABLE 3
ANALYTICAL RESULTS FROM WCC-3 SOIL SAMPLES ug/kg (ppb)

Sample No.	Sample Depth (feet)	1,1,-Dichloroethene (1,1-DCE)	1,1-Dichloroethane (1,1-DCA)	1,1,1-Trichloroethane (1,1,1-TCA)	Toluene	4-methyl-2-pentanone (MIBK)
MW-3-2-3	55	53	98	70	590	ND '
MW-3-3-3	65	ND	ND .	ND	8	310
Detection Limit		5	5	5	5	30

ND - not detected

from these borings are summarized in Table 4. Laboratory analytical results for water and soil samples, and copies of the chain-of-custody forms are presented in Appendix C.

4.5 Depth of Penetration of Petroleum Hydrocarbons

Boring B-4 was installed on 26 May 1987, and was terminated at a vertical depth of approximately 54 feet (slant depth of 60.5 feet, see Figure 2). The analysis of samples collected from the boring showed that the concentration of petroleum hydrocarbons decreased from 16,000 mg/kg to below detection between a depth of 50 and 54 feet. Table 5 summarizes the analytical data. Data from this boring indicated that the petroleum hydrocarbons have penetrated to a depth of approximately 50 feet.

5.0 CONCLUSIONS

Observation wells WCC-2, -3, -4, and -5 were installed to depths of approximately 90 to 91 feet at the Torrance (C6) facility. Soil borings B1, B2, B3, and B4 were installed to depths ranging from 31 to 54 feet, adjacent to tanks 19T and 20T. Data obtained from these wells and borings indicate the following:

- The ground water gradient in the area under investigation slopes from the northwest to southeast (see Figure 3).
- 2. During installation of Well WCC-3, elevated OVA headspace readings and chemical odors were observed at depths from 55 to 90 feet. Low concentrations of organic compounds were detected in two soil samples analyzed from this boring. These low concentrations indicate that the compounds are probably present in the soil at this location, as a result of diffusion of the compounds from the source(s) in the soil and/or ground water as opposed to a direct release.

BOE-C6-0091863

TABLE 4

ANALYTICAL RESULTS FROM SOIL BORINGS 15TB AND 17TB (ug/g) ppm

Sample No.	Sample Depth	1,1-DCE	TCE	2-Butanone (MEK)	1,1,1-TCA	Toluene	Ethylbenzene	Total Xylenes	4 Methyl-2¬ Pentanone (MIBK
15TB- 3 -3	10	<1	ND	ND	<1	<1	<1	<1	ND
15TB-4-3	15	ND	10	160	27	870	41	460	ND
1518-5-3	20	ND	94	1,800	38	6,300	180	1,300	ND
1718-2-3	5	ND -	ND	ND	ND	ND	ND	ND	ND
17TB-3-3	10	ND	ND	ND	<1	<1	ND	ND	ND
1718-5-3	20	ND	ND	ND	<1	<1	ND	ND	ND
1718-7-3	30	ND	ND	810	. ND	ND	ND	ND	840
Detection Limit									

Note:

ND - Not Detected

Borings 15TB and 17TB were installed on 24 August 1987. Boring logs and analytical data sheets are presented in Woodward-Clyde Consultants report, "Phase III Drilling Program at the Torrance (C6) Facility" dated 15 December 1987.

TABLE 5

ANALYTICAL RESULTS FROM BORING B-4

Sample Depth (ft)	<u>Petroleum Hydrocarbons</u> (mg/kg)
13	ND
18	15,000
22	44,000
27	8,200
31	28,000
36	6,000
40	1,500
4 4	
49	16,000
54	ND
Detection Limit	10

⁻⁻ Not analyzed
ND Not Detected

- 3. Analytical results obtained from water samples collected from wells WCC-1, -2, -3, -4, and -5 do not indicate the presence of petroleum hydrocarbons other than benzene and toluene. However, halogenated hydrocarbons were found in all of the water samples. The distribution of concentrations appear to indicate a primary source of these compounds near tank cluster 15T through 18T. These tanks and associated piping tested tight during the tank testing program in 1986.
- 4. Ground water elevations from the shallow semi-perched aquifer ranged from -19.72 to -21.77 feet Mean Sea Level. The negative ground water elevations indicate that the ground water is below sea level.
- 5. Data obtained from observation wells and Boring B-4 indicate that the piping at tanks 19T and 20T is not the source of the organic compounds in the ground water. The area near tank cluster 15T through 18T appears to be a more likely source. In addition, the petroleum hydrocarbons do not appear to have penetrated greater than 50 feet below the surface, and are confined to the area of Building 41.
- 6. Water samples from Well WCC-2, the upgradient well, and WCC-5, the perimeter well, had very similar, low concentrations of volatile organic compounds. This may indicate that ground water entering the site contains low levels of organic compounds. The installation of another upgradient perimeter well would be necessary to further evaluate if this condition exists.

APPENDIX A

FIELD PROCEDURES AND METHODOLOGY

(ABC/DAPPA)

APPENDIX A FIELD PROCEDURES AND METHODOLOGY

A.1 GENERAL INFORMATION

Drilling was performed by A & R Drilling, Inc. of Carson, California. Drilling began on 26 October 1987 and was completed on 24 November 1987. Observation wells were drilled using a CME 75 with 7-inch outside diameter (O.D.) and 10-inch O.D. hollow stem augers.

A.1.1 Observation Well Installation

Observation wells WCC-2, -3, -4, and -5 were constructed of 4-inch, Schedule 40 PVC and set to a depth of about 90 to 91 The observation wells were installed by drilling a 90-foot deep pilot hole with the 7-inch O.D. hollow stem augers used for soil sampling. Upon removal of the 7-inch hollow stem auger from the hole, 10-inch O.D. hollow stem augers were used to ream the pilot hole to a 10-inchdiameter. A wooden plug was placed in the lead cutting auger to prevent cuttings and water from entering the inside of the auger. Municipal water was added to the inside of augers as drilling progressed through the water table to offset the hydrostatic pressure of the fine grained flowing sands outside the augers. Two attempts were made to install Well WCC-3 without the use of water, but the bottom 3 to 5 feet of the auger "sanded-in" immediately after knocking out the wooden plug. The "sanding-in" of the augers prevented the wells from being properly constructed. Water had to be used for proper construction of WCC-2, -3, -4, and -5.

amounts of city water used at each well was noted on the well log forms and samples of city water were collected for possible laboratory analysis.

A.1.2 Well Construction

The observation wells were constructed of 4-inch O.D. Schedule 40 PVC flush-threaded blank pipe, and screened with slot. Adhesives were not used. Wells installed with 70 feet of blank casing and 20 feet of screen. The well screen was filter packed using a 1-1/4 inch diameter tremie pipe, to reduce the possibility of sand bridging inside the augers. A filter pack material of Monterey #0/30 sand was selected, based on a field sieve analysis. Filter pack analysis is discussed in Section A.4. The filter pack was placed from the well bottom to about 5 feet above the top of the well screen from 65 to 90 feet.

A five-foot thick bentonite pellet plug was placed above the filter pack, at depths from about 60 to 65 feet, to minimize movement of fluids through the annular space. In addition, bentonite grout was placed at depths from approximately 8 to 60 feet below ground surface. A concrete plug was placed from approximately 8 feet to the surface, to minimize seepage of surface fluids into the well. The top of the well casings were completed 3 to 6 inches below grade and protected with a steel traffic-rated Christy box. Appendix B presents the Boring Logs and graphic well construction details.

A.1.3 <u>Drilling Residuals</u>

Drill cuttings from each boring were placed in DOT Class 17H 55-gallon drums. The contents of the drums were labeled using an identification label and permanent ink marker. The drums were sealed and left adjacent to the boring locations.

Douglas Aircraft was advised of the locations and contents of the drums, and the need for proper management of the drill cuttings.

A.1.4 Decontamination

Augers and drilling equipment were steam cleaned between borings and wells to minimize the possibility of cross-contamination. The modified California soil sampler and brass tubes were cleaned as follows:

- o Deionized water wash to remove mud and soil;
- o Deionized water with Liquinox detergent;
- o Deionized water rinse to remove detergent;
- o Deionized water rinse; and
- o Dried with paper towel.

A.2 SOIL SAMPLING

Subsurface soil samples were collected at approximately 45, 55, 65, 75, and 80 feet below ground surface. Soil samples were collected for Organic Vapor Analyzer (OVA) headspace measurements, and for laboratory analyses. Soil samples were collected using a California modified sampler. The California modified sampler holds four brass tubes, and is 18 inches in length. Soil sample depths and OVA headspace measurements are shown on the Boring Logs in Appendix B.

A.2.1 OVA Headspace Measurements

Field OVA headspace measurements were taken from one of the soil samples collected at each sampling depth. This procedure was conducted by extruding the contents of one brass tube into a one pint glass jar. The jar's lid has a

1/4-inch diameter hole, which was sealed with duct tape. Approximately 10 minutes was allowed for organic vapors from the soil to reach equilibrium inside the jar. An OVA probe was then inserted through the hole in the jar, and the vapor concentration was measured (in ppm).

A.2.2 Soil Sample Preparation

One to two tubes from the soil sampler were prepared for laboratory analysis. The ends of the tubes were covered with aluminum foil, plastic end caps, and sealed with electrical tape. Soil samples were labeled with the following information:

- o Project number
- o Project name
- o Boring number
- o Sample number
- o Soil depth
- o Date
- o Person collecting sample

The soil samples were then sealed in Ziploc plastic bags and placed on ice in an ice chest. All soil samples were delivered to West Coast Analytical Service, Inc. in Santa Fe Springs for analysis. Chain-of-custody procedures, includsample the use of identification labels and chain-of-custody forms, were used for tracking the collection and shipment of soil samples. Copies of the chain-of-custody forms are presented in Appendix C.

A.3 FIELD OBSERVATIONS

Observations made by Woodward-Clyde Consultants personnel during the drilling and sampling operations were recorded on Boring Logs, as presented in Appendix B. These observations to visual soil classifications, geologic stratigraphic comments, observation well construction sampling efforts, OVA measurements, details, and other pertinent information.

A.4 FILTER PACK ANALYSIS

Selection of the proper filter pack material and well screen slot size is essential in collecting a sediment-free or low sediment content water sample. In observation wells WCC-2, -3, -4, and -5 soil samples were collected from 75 or 80 feet below grade for sieve analysis. Filter pack design calculations were made based on the grain size distribution obtained from these soil samples.

Soil analyses were conducted in the field by collecting a soil sample from below the water table with a California sampler. The soil sample was heated with portable propane stove to evaporate all water from the soil. When the sample was dried, it was weighed on a scale to the nearest gram. The soil sample was then poured into the top of eight sieves and shaken for approximately 5 minutes. sieve sizes used in the analysis are shown in Figure A-1. The cumulative percent of the soil sample retained in each sieve was weighed and plotted on a sand analysis curve. is the sand analysis curve that graphically characterizes the grain size distribution of the soil. Sand analysis curves for wells WCC-2, -3, -4, and -5 are illustrated in Figures A-1, A-2, A-3, and A-4, respectively.

٧	Vell Name: 🗀				C - 2	 			Date: _	29	Octobe	r 1987	
	Vell Location:						ee Figure	3					
s	ample Depth:			85 - 8	86.5 fe	et			. Perform	Jacobs			
С	Comments:										بحقيقة فسينسن والسنب مي		
100	0		, : [: :			1 + 1 1							
9(0 14												
											FILTER		
80	0									NO OF		CUMUL	
						1 1					(in.)	(%)
a 7	0		+++-		.					1404			
<u> </u>	Ψ \					:	:	1.		20 · .0:	33		
KE TAINED								1		400		32	21 48
	" \					ļ				500 800		54 87	70 100 °
2 U	1 1 1	11 11							,	100 - 0			100
¥ 5:	0 4	4						- : -		<u> </u>			
COMULATIVE FERCENT		1 1 1			• • • • • • • • • • • • • • • • • • •				COEFF	ICIENT O	FUNIFO	RMITY	- 2
E 4	0	A -	+					1					
Ž Ž				. : : }	1								
			<u>' </u>			<u> </u>	:						
·													
					1 .						_		
2	0				i						GEND		
		$\mathbb{I} \setminus \mathbb{I}$									GUND		
1	0					 		 				APLE C	
	4									⊗ FI	LTER	PACK C	URVE
(0	100	Щ.		:			70 8		0 100	1	10 1	20
	0 10	20	30	40		50 D. GRAU	60 N SIZE, IN		_			10 (20
			3201	Or Eliti	10 7.11	Janan							
	SIEVE	SAMPLE		JLATIV			Notes: _	_		- 300 gra efficient =	- 200	- = 2	
N	O OPENING (in.)	WEIGHT (gms)		AINED		SING		Officer	mity Coe	incient -	004		
	14052												
	18040 20033								Onsair		.008	inch	
	30023 40016	3	1	1		99	Hecomi	ended Slo	ot Obenii	19			
	50012	23		8		92							
	80007 00006	150 205	1	50 58		50 32				· · · · · · · · · · · · · · · · · · ·			
	Bottom Pan	300		00		0				·····			
		-											
roject		LAS AIR											Fig

Well Name:	••	theast corne	·	ildina 1			Date:		3 October		
Well Location:			···						R	. Jacobs	
Sample Depth:		/5 - /0	o.5 reet				. Perform	ed By:.		. 000000	
Comments:											
100				1 1 1							
91									, .		
90						: 1 1 1					
#/									1 .	PACK	
80 1								1	EVE OPENING	RETAI	
									(in.)	(%)	
70						1 1 1		14 -	.040	2 -	
.						1	1111	20 ·		11 · ·	
60	\-				-	<u> </u>		40 ·		59 - 82 -	
	1							80 -	.007	02	
50	<i>\</i>			ļ				100 -	.006		**************************************
	\mathcal{T}						COEF	ICIENT	OF UNIF	I I	- 2
40	7					1 1					
\$	1					1:::	1 1				
30									. :		
		N		. : : :				٠.			
20								1 .	LEGEND		
								-			
10	a							Ø:	SOIL SAM	MPLE CL	JRV
	8								FILTER I	PACK CC	ן עחנ
0 10	20	30 4	0 !	50	60 70	1	30 9	ю	100 1	10 1	20
		SLOT OPEN	~			THOUSA	NOTHS C	F AN I	NCH		
					Notes:	Sample	Weight -	300 gr	ams		
	AMPLE VEIGHT	CUMULATI RETAINE		SING		Uniforr	nity Coe	fficient	= <u>.011</u> .007	= 1.57	7
(in.)	(gerre)	(%)		(%)							
14 · .052 18040				22					010		
20033 30023	8 13	3 4		97 96	Recommen	nded SI	ot Openi	ng:	.010	IIICII	
40016 50012	25 100	8 33		92 67							
80007 100006	268 284	89 95		11 5							· · · · · · · · · · · · · · · · · · ·
Bottom Pan	300	100		0							

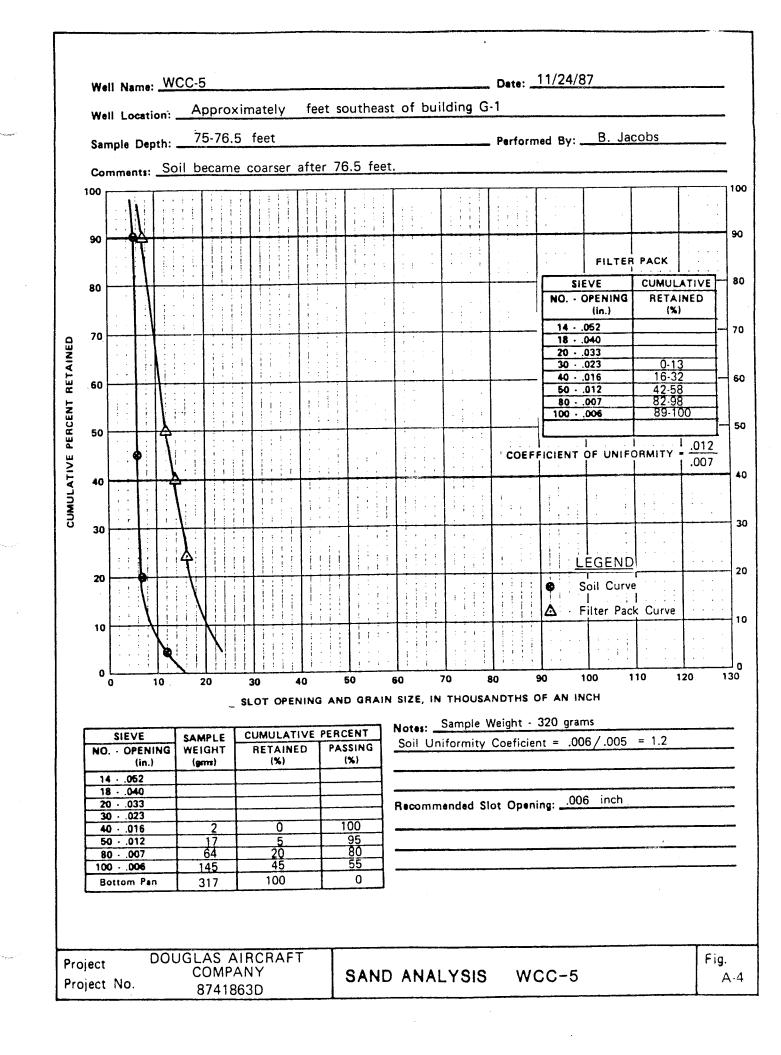
	Name:					neast	WC		-		See	Fic	uire		,		-	Date:		29	Nove	mb	er 1987	
	Locatio ple Dept										566							Perfor	med	Bv:		В.	Jacobs	
																	-			٠,٠				
com 100	ments: .																							
	\													:									-	
90	1	1								1 1							T				FIL:	TER	PACK	
80	6	+	4	++			-	+		- 1		-					+		1	SI	EVE		CUMUI	LATIVE
	\$							•					:		:					0	OPENIA (in.)	70	RETA (%	()
70								: ;			:								E	18 · 20 · 30 ·	.040 .033			· 26 · 38 · 58
60			1					: :			:						-		Ē	40 · 50 · 80 ·	.016 .012 .007		66	- 82 - 98
50		b		4					-		:						-	COEF			1 .	IIF	ORMITY	1 = 2.3
40		1		7	4	::				1 1		+												-
30		+			\	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		: :	1		· ·						+	· · · · · · · · · · · · · · · · · · ·	-				·	-
20		9	2			\		: :			:						-	: :	-		ļ			-
10				8				\					:		:						<u>ĠENI</u>	_		
10					1	8					1								\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	50 FII	IL SA LTER 	ΑΙVI Ρ.	PLE C ACK C	URV URV
0	10		20		30		40		5			60		7			80	DTHS (90		00 	1	10	120
					SEU	UP	MIN		(NO	G F	17111													
	EVE OPENIN		MPL			ULA				NT		No	tes:	<u> </u>	am Inif	orm	ity	ight - Coeff	28 I icien	gran t = .	.013 .004 -	=	3.25	
14	(in.)		1.5			(%)		╀	99	6)	4										,004			
18 -	.040		5			1.7		丰	98	.3														
20 ·		+	39			2.5 14		+	97 8	6 6	\exists	Re	соп	nme	nde	d S	lot	Openi	ng:		.010	incl	1	
40 .	.016		64	\Box		2.3		T	7	7	\Box													
50 ·			137 212	\dashv		49 75		+-	<u>5</u>	<u> </u> 5	-							······································						
100 -	.006	1	226			80		T	2	0	\exists													
Botte	om Pan		278			99		1_		1	ل													
											•													

8741863D

Project No.

BOE-C6-0091874

A-3



Calculation of the filter pack size was performed by multiplying the 50 percent retained size of the formation sample by 2 (Johnson 1986). This value was plotted on the sand analysis curve. Through this point on the filter pack curve, a smooth curve was drawn representing material with a uniformity coefficient of 2 to 3. The uniformity coefficient was calculated by dividing the 40 percent retained value by the 90 percent value, as shown in the equation below.

Uniformity Coefficient (U.C.) =
$$\frac{U.C.40}{U.C.90}$$

This filter pack curve defined the ideal filter pack required to prevent the entrance of fine silts, sands and clays into the observation wells. A ready made filter pack material was then selected that best matched the calculated filter pack curve, since custom made filter pack materials were not readily available. The sand analysis curves for wells WCC-2, -3, -4, and -5 were similar and the soils were classified as fine-grained sands. The filter pack selected for the three observation wells was a Monterey #0/30 sand. The sand analysis curve for Monterey #0/30 is shown on Figure A-4. A screen slot size of .010 inch (10 slot) was chosen to retain 95 percent of the selected filter pack.

A.5 WELL DEVELOPMENT AND WATER SAMPLING

Observation wells WCC-2, -3, and -4 were developed on 30 October 1987 by Beylick Drilling Company of La Habra, California. Beylick Drilling Company also developed WCC-5 on 30 November 1987. The wells were developed by a sand bailer and surge block method for 45 to 60 minutes and then pumped with a submersible pump. Wells WCC-3 and WCC-4 had

165 gallons of water removed during development. Well WCC-2 had 225 gallons removed during development. Well WCC-5 had 300 gallons removed during development. Table A-1 presents the development times and the ground water volumes removed.

The last 50 to 185 gallons removed from the four observation wells was observed to be sediment free.

Water removed from the wells during development was contained and sealed in DOT Class 17E 55-gallon drums adjacent to the wells. The drums were labeled for contents, date, and well number, and Douglas Aircraft's contact employee (Mr. Don Gerber).

Observation wells WCC-2, 3, and 4 were sampled on 2 November 1987. Well WCC-5 was sampled on 30 November 1987 and 8 January 1988. Each observation well had a minimum of three well casing volumes removed before a ground water sample was collected. Electrical Conductivity (EC) and temperature was recorded from each five gallons of ground water removed from the well. Stabilized EC and temperature values indicated that ground water from the aquifer formation was being extracted from the well. Table A-2 presents EC, temperature, and ground water volume data recorded during water sampling. The water removed from the wells is being stored on-site prior to disposal.

Observation wells were bailed with a 3-1/2 inch diameter PVC bailer. This bailer was washed with Liquinox detergent and rinsed with deionized water between usage in each well. The PVC bailer was only used for well volume removal and was not used for water sampling. After a minimum of three well volumes had been removed, and EC and temperature stabilized, a water sample was collected using a clean, 2-inch diameter

TABLE A-1
WELL DEVELOPMENT SUMMARY

Well No.	Sand Bailer and Surge Block Time (min)	Sand Bailer Volume Removed (gal	Pumping Time (min)	Pumping Volume Removed (gal)	Total Volume Removed (gal)	Comments
WCC-2	60	80	35	145	225	Water clear after pump- ing 90 gallons
WCC-3	45	15	40	150	165	Water clear after pump- ing 95 gallons
WCC-4	45	40	35	125	165	Water clear after pump- ing 75 gallons
WCC-5	60	30	55	270	300	Water clear after pump- ing 85 gallons

TABLE A-2
WATER SAMPLING ELECTRICAL CONDUCTIVITY AND TEMPERATURE DATA

Well No.	Sample Date	Sample Interval (gal)	Electrical Conductivity EC - umhos	Temperature C°	рН
WCC-2	11/2/87	0-5 5-10 10-15 15-20 20-25 25-30 30-35	750 1,000 1,000 1,000 1,000 1,000 1,000	22.5 22.5 22.5 22.5 22.5 22.5 22.5 22.5	NA NA NA NA NA
WCC-3	11/2/87	0-5 5-10 10-15 15-20 20-25 25-30 30-35	2,250 2,100 1,950 2,000 2,000 1,900 1,800	23.0 23.0 22.5 22.5 22.5 22.5 22.5	NA NA NA NA NA
WCC-4	11/2/87	0-5 5-10 10-15 15-20 20-25 25-30 30-35	1,000 1,050 1,050 1,050 1,050 1,050 1,050	25.0 22.5 22.5 22.5 22.5 22.5 22.5	NA NA NA NA NA
WCC-1	11/12/87	0-2.5 2.5-5.0 5.0-7.5 7.5-10.0	1,400 1,400 1,400 1,400	22.5 22.5 22.5 22.5	NA NA NA
WCC-2	11/12/87	0-5 5-10 10-15 15-20 20-25 25-30 30-35	700 700 700 700 710 710 710	22.0 22.0 22.0 22.0 22.0 22.0 22.0	NA NA NA NA NA
WCC-3	11/12/87	0-5 5-10 10-15 15-20 20-25 25-30 30-35	2,100 2,000 1,950 1,910 1,900 1,900	22.5 23.0 23.0 23.0 23.0 23.0 23.0	NA NA NA NA NA
WCC-4	11/12/87	0-5 5-10 10-15 15-20 20-25 25-30 30-35	1,200 1,200 1,150 1,050 1,050 1,100 1,000	22.5 22.5 22.5 22.5 22.5 22.5 22.5	NA NA NA NA NA

(L/ABC-DAC-A2)

Table A-2 (continued)

Well No.	Sample Date	Sample Interval (gal)	Electrical Conductivity EC - umhos	Temperature C°	Hq
WCC-5*	11/30/80		NA	NA	NA
WCC-5	1/8/88	0-5 5-10 10-15 15-20 20-25 25-30 30-35 35-40	950 960 960 900 880 880 880 880	21.5 22.0 22.0 22.1 22.1 22.1 22.1 22.1 22.1	6.9 6.9 6.9 6.9 6.9 6.9

NOTE:

NA - Not Analyzed, pH meter inoperative.

WCC-5* - Water sample collected immediately after development of 300 gallons (23 well volumes) from well.

No measurements taken.

Teflon bailer. Each well was sampled with a different 2-inch bailer to minimize the potential for cross-contamination.

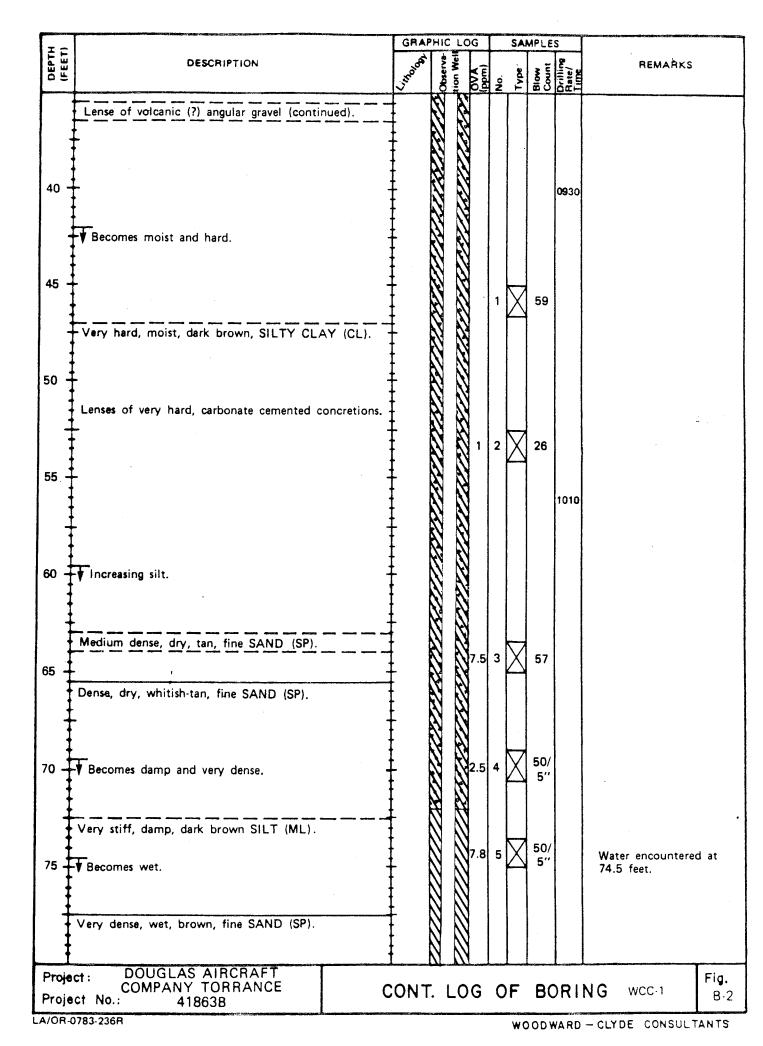
APPENDIX B

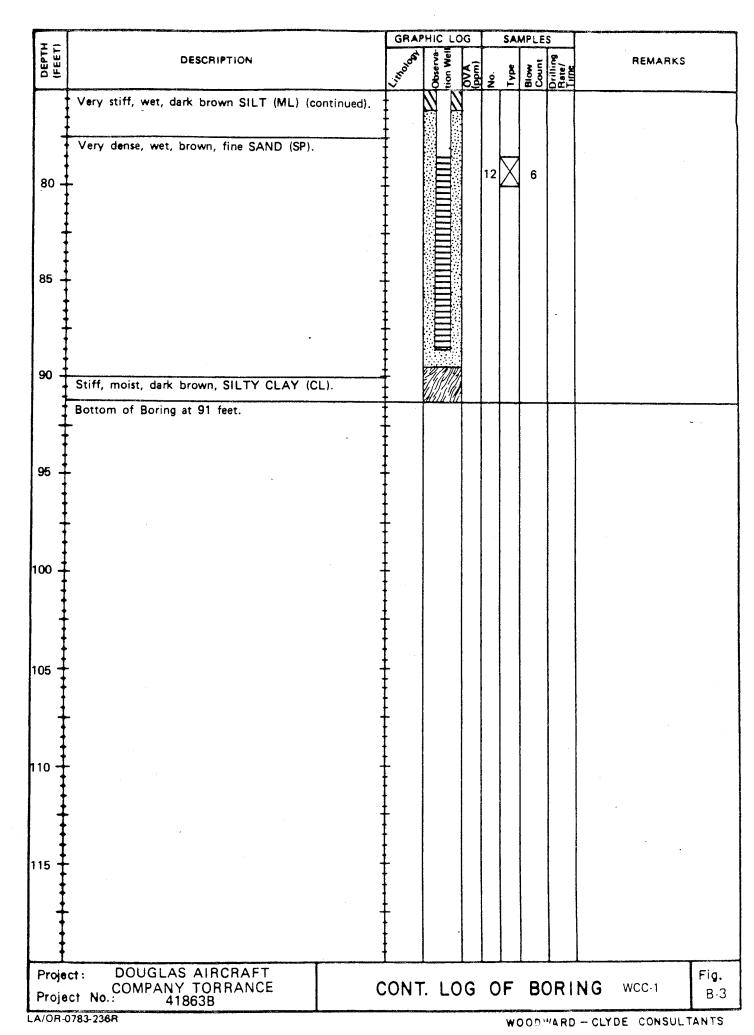
BORINGS LOGS

(ABC/DAPPA)

BORING LOCAT	on						VATION D DATE	M M				,
AGENO	iG Y	DRIL	LER				TE ARTED	N		DATE FNISHED		
DRILLIN EQUIP TYPE	MENT	ICOCEN :				DE	MPLETIC	1		POCX DEPTH (1		
NO OF	ASING	SCREEN PERFORATION UNDIST.	COF)		ĐΩ	METER RING (I CCED B	(L)		MELL (In.		
SAMP	ES TIRST	COMPL		HRS.		Ψ	2 لت حد	11		CHECKED	01	
DEPTH	(ft) I					1_	SAMPL	<u> </u>			· · · · · · · · · · · · · · · · · · ·	
				WELL	. 1		ORMA		•			
DEPTH (feet)	DES	CRIPTION						0.V.A.	ا څه	F	REMARKS	
٥				FOG	ý	è	Blow	(ppm)	Drilling Rate (Time)			
	. Medium dense, moist	t, light brown, SILTY	•			\exists	<u> </u>		04			
	fine grained SAND (S	SM). <			$ \uparrow $							
	Unified Soil Classifica	ation System (USCS).				W						
5	Sample Identification	Number.		· · · · · · · · · · · · · · · · · · ·	\vdash							
"	Sample Location and	Туре				┦╽						
	Concrete						Λ					
1	Bentonite Pellets	S	-					A				
10			•									- .
	Native Soil								$ \Lambda $			
	Monterey No. 0/	/30 Sand Filter Pack								Λ		
15	. 🖯			Ė						į		
	Screen		•	•								
	· C 7											
	Modified Californ	nia Sampler.	•	†								
20	- PT											
	Bentonite (Volcid	ay) Grout	•									
				Ī		'						
				‡								
25	Number of Blows Re	quired to Advance S	ampler	<u>†</u>								
20	One Foot using a 14 with a 30—inch Drop	40 Pound Downhole h	lamme	<u> </u>		_	Ц					
				‡								
]	Organic Vapor Analys	zer (OVA) Readings	•	Ŧ								
7,	(field headspace).			ļ				Γ				
30-	- Rate at which Drilling				-	1		ļ	↓			
	Time at depths note	d.		Ī							•	
1	Remarks or Commen	nts by Driller or Drilli	ng .	‡								
	Supervisor. ———			<u> </u>		Γ						
35-	-		,	†								
				Ī								
Pro	ject: DOUGLAS AIR	CRAFT COMPANY		1	125	- _	· T^	BOR	INIC I			Fig.
1	iest No:	7418635			ΚF	- Y	I C	BUK	ING L			6-0
	<u>O</u>	7.710000							WOO	DWARD-CLY	DE CONSULTAN	" 5

Mobile Drill #61, 10-Inch O.D., H.S.A. Description of participation of p	DOAIN	WCC-1			ELEV.	ATIO	N T	op of	Casing 50	0.70 Fe	et
Mobile Orill B-61, 10-inch d. D., H.S.A. Committee	DAILL	ING Datum Exploration Inc. DRILLER	Jame	es	DATE	TEO	3-2	W. North Co.	DATE	n 3-	
DESCRIPTION	DAILL	Y:			COMP	LETIC	N	91	POCK	FT)	_
DESCRIPTION	DIAM	THE AND TYPE OF A DIVINE Three-ded			OF SA	MPL	ESI	J			_
No. 12 Silica Sand Bentonite Pellet Plug and Bentonite Grout S. Donaldion S. AMPLES DESCRIPTION Asphalt Description Asphalt Description Asphalt Description Description Asphalt Description Description Asphalt Description De	TYPE	OF 02 Stat			WA	TER	:FII	9 87 74	.5 COMPL	_ 24	HAS _
DESCRIPTION Asphalt Description Asphalt Description Asphalt Description Asphalt Description Asphalt Description Asphalt Description Becomes reddish-brown, SILTY SAND (SP) with clay and gravel. Becomes reddish brown, no gravel. Becomes medium brown. CLAYEY SAND (SC). Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. The same fine sand. Becomes hard with more clay. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project: No.: 41863B Lens of Machine Project (Machine) BAMPLES REMARKS AREMARKS AREMARK					LOGG				- 1		
DESCRIPTION Asphalt Damo, reddish-brown, SILTY SAND (SP) with Damo, reddish-brown, SILTY SAND (SP) with Becomes reddish brown, no gravel. Stiff, damp, medium brown, CLAYEY SAND (SC). Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. The same fine sand with more clay. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE COMPANY TORRANCE Project No.: 418638 Project No.: 418638 REMARKS REMA	TYPE	OF Bentonite Pellet Plug and Bentonite Gro	ut			S. D	onal	dson		B. Jaco	bs
Asphalt Damo, reddish-brown, SILTY SAND (SP) with clave and gravel. Becomes reddish brown, no gravel. Becomes medium brown. CLAYEY SAND (SC). O915 Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. Description of the sand. Descrip				T . =		SA	MPLE	S			
Asphalt Damo, reddish-brown, SILTY SAND (SP) with clave and gravel. Becomes reddish brown, no gravel. Becomes medium brown. CLAYEY SAND (SC). O915 Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. Description of the sand. Descrip	EET	DESCRIPTION	900	2 3		×	3 \$	2 2	M	MARKS	3
Damo. reddish-brown, SILTY SAND (SP) with Becomes reddish brown, no gravel. Becomes medium brown. CLAYEY SAND (SC). Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. Becomes hard with more clay. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project: No.: 41863B Project No.: A1863B Project No.: COMPANY TORRANCE Project No.: 41863B	٦٥		1/1/2	0 2		<u> </u>	33	OCH			
Decomes reddish brown, no gravel. Becomes reddish brown, no gravel.			‡		-			0905			
Becomes reddish brown, no gravel. CLAYEY SAND (SC). Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. Becomes hard with more clay. Becomes hard with more clay. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B	}	Damp, reddish-brown, SILTY SAND (SP) with	‡	77	4			1 1	readi	ng – 1	2 ppm
Becomes reddish brown, no gravel. Becomes medium brown. CLAYEY SAND (SC). Stiff, damp, medium brown, CLAYEY SILT (ML) With some fine sand.		Becomes black	‡								
Becomes reddish brown, no gravel. Becomes medium brown. CLAYEY SAND (SC). Stiff, damp, medium brown, CLAYEY SILT (ML) With some fine sand.	ł		‡	N	$N \mid$						
Becomes reddish brown, no gravel. Becomes medium brown. CLAYEY SAND (SC). Stiff, damp, medium brown, CLAYEY SILT (ML) With some fine sand.]		‡	N	$ \mathcal{M} $						
CLAYEY SAND ISCI. 20 25 Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. 30 V Becomes hard with more clay. 35 Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 418638 LOG OF BORING WCC-1 Fig. 8.	}	Becomes reddish brown, no gravel.	‡	\aleph							
CLAYEY SAND ISCI. 20 25 Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. 30 V Becomes hard with more clay. 35 Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 418638 LOG OF BORING WCC-1 Fig. 8.			‡		\mathcal{N}						
CLAYEY SAND ISCI. 20 25 Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. 30 V Becomes hard with more clay. 35 Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 418638 LOG OF BORING WCC-1 Fig. 8.	}	•	‡		\mathcal{M}						
CLAYEY SAND ISCI. 20 25 Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. 30 V Becomes hard with more clay. 35 Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 418638 LOG OF BORING WCC-1 Fig. 8.			†	\mathcal{N}	β						
CLAYEY SAND ISCI. 20 25 Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. 30 4 Becomes hard with more clay. 35 Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B LOG OF BORING WCC-1 B.	10	Becomes medium brown.	‡	Ø	73						- .
20 25 Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. 30 Becomes hard with more clay. 35 Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B		,	1	Ŋ	g						
20 25 Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. 30 Becomes hard with more clay. 35 Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B	- }		‡	M	\aleph		-				
20 25 Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. 30 Becomes hard with more clay. 35 Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B		-	‡	N	13			0015	,		
25 Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. 30 Becomes hard with more clay. 35 Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B	j	CLAYEY SAND (SC)		Ø	$N \perp$			0913			
25 Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. 30 Becomes hard with more clay. 35 Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B	15 -	- -	‡	N	$M \mid$,		
Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. 30 Becomes hard with more clay. 15 Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B LOG OF BORING WCC-1 B. B	1	•	1		13						
Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. 30 Becomes hard with more clay. 15 Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B LOG OF BORING WCC-1 B. B	}		‡	\aleph			j				
Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. 30 Becomes hard with more clay. 15 Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B LOG OF BORING WCC-1 B. B			†	Ø	$N \mid$						
Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. 30 Becomes hard with more clay. 15 Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B LOG OF BORING WCC-1 B. B	1		1	Ø	MI						
Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand. 30 Becomes hard with more clay. 15 Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B LOG OF BORING WCC-1 B. B	20	-	‡		73						
with some fine sand. Becomes hard with more clay. Dense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B Lense of volcanic (?) angular gravel. LOG OF BORING WCC-1 B. B			†		73						
with some fine sand. Becomes hard with more clay. Dense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B Lense of volcanic (?) angular gravel. LOG OF BORING WCC-1 B. B			1	1							
with some fine sand. Becomes hard with more clay. Dense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B Lense of volcanic (?) angular gravel. LOG OF BORING WCC-1 B. B			†		M						
with some fine sand. Becomes hard with more clay. Dense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B Lense of volcanic (?) angular gravel. LOG OF BORING WCC-1 B. B	1		-1	N	M						
Becomes hard with more clay. 135 Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B LOG OF BORING WCC-1 Fig. B.	25		+	\aleph	13				1		
Becomes hard with more clay. Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B LOG OF BORING WCC-1 B.	1	, with some fine sand.	-	N	13						
Becomes hard with more clay. Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B LOG OF BORING WCC-1 B.	1		1	M	M						
Becomes hard with more clay. Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B LOG OF BORING WCC-1 B.	. 4	•	Ŧ	M	β						
Becomes hard with more clay. Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B LOG OF BORING WCC-1 B.	1		-	W	\bowtie						
Becomes hard with more clay. Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B LOG OF BORING WCC-1 B.	30 -	-	‡	12	N						
Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B LOG OF BORING WCC-1 B.			I	Ŋ	M			200			
Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B LOG OF BORING WCC-1 B.		Becomes hard with more clay.	I	N				092			
Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B LOG OF BORING WCC-1 B.	-		Ŧ	N	7/						
Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B LOG OF BORING WCC-1 B.			1	Ŋ	N						
Lense of volcanic (?) angular gravel. Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B LOG OF BORING WCC-1 B.	35 -		+	\aleph	N						
Project: DOUGLAS AIRCRAFT COMPANY TORRANCE Project No.: 41863B LOG OF BORING WCC-1 B.		Language of values in 23 angular gravel		N	N						
Project: COMPANY TORRANCE Project No.: 41863B LOG OF BORING WCC-1 B.			<u> </u>	77	77						1
Project No.: 41863B	Pro	ct: DOUGLAS AIRCRAFT			100	^	-		ING	WCC-1	Fig.
A CONTRACT CONTRACT TANTS		COMPANY TORRANCE			LUG	U	r	אטם	1110		B-1
			·	ofter under the			woo	DWAF	O - CLYDE	CONS	ULTANTS





ORING OCATION	W	/CC-2	See	igure :	2			ELE	VATION D DATU	u To	op of	casing @ 50.59	
RILLING	A & R [DRILLER		1. Smi	th	DA			8-87	DATE FINISHED 10-28	
RILLING			5, 10—inc	ch H.S.	Α.			CO	MPLETIC	XN C	0.6	ROCK DEPTH (ft)	_
YPE OF VELL CASING		40 PVC) Slot		DIA	METER RING (in	OF .	10		 1
OF AMPLES	DIST.		UNDIST.	5	COR				GED B	Y		CHECKED BY	
AMPLES VATER DEPTH (ft)	FIRST	73	COMPL		24	HRS. 71	1.1		}	H. Rey	es	B. Jaco	os
DEPTH (feet))ESCRIP	ПОМ			WELL LOG	No.	INF	Blow Count Count		Drilling Rate (Time)	REMARKS	
SAN 5	halt ium stiff, very IDY CLAY (CL) Becomes very Color change stiffer less m	i. / dark gr to yellov	ayish brow	n. Become	***************************************						1306	Background OV, reading = 5 pp	
15	Continued SAI more moist.	NDY CLA	Y (CL). Le	ss stiff,	***************************************				a de la companya de l		1317		
 '	Grades to SIL ium stiff, very Y.		• •	— — — n, SILTY	- 1						1319		
25					+		,				1323		
30					,						1327		
35											1333		·
Project:	DOUGLAS A	NRCRAF	F COMP	ANY			10	G	OF	BORI	NG	WCC-2	Fig.
Project	No.:	87418	63D					,	O1		110	1100 2	B-1-
,													

Continued Stiff, moist, alive brown, Sitry CLAY (CL).	DEPTH (feet)	DESCRIPTION	WELL LOG	No.	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
SILTY SAND (SM), with shells.	40-	(continued) Stiff, moist, olive brown, SILTY CLAY (CL).				-			·
Very dense, dama, strong brown, fine grained SAND (SP) to SILTY SAND (SM), iron oxide staining. Becomes SILTY SAND. Becomes wet. 75 Very dense, wet, olive brown, fine grained, SILTY SAND (SM). Project: DOUGLAS AIRCRAFT COMPANY CONT. LOG OF BORING WCC-2 Fig.	45	Dense, moist, olive brown, fine grained, SILTY SAND (SM), with shells.		1	X	34	5	1342	
Very dense, damp, strong brown, fine grained SAND (SP) to SILTY SAND (SM), iron oxide staining. Becomes SILTY SAND. 55 Dense, moist, olive, fine grained SILTY SAND (SM), some iron oxide stains. 70 Project: DOUGLAS AIRCRAFT COMPANY CONT. LOG OF BORING WCC-2 Fig.	50-	- - - - - - -						1357	
Becomes SILTY SAND. 65 Dense, moist, olive, fine grained SILTY SAND (SM), some iron oxide stains. 70 Becomes wet. 75 Very dense, wet, olive brown, fine grained, SILTY SAND (SM). 80 Project: DOUGLAS AIRCRAFT COMPANY CONT. LOG OF BORING WCC-2 Fig.	55-	· ' grained SAND (SP) to SILTY SAND (SM),		2	X	60	5	1402	
Dense, maist, olive, fine grained SILTY SAND (SM), some iron oxide stains. 70 Becomes wet. 75 Very dense, wet, olive brown, fine grained, SILTY SAND (SM). Project: DOUGLAS AIRCRAFT COMPANY CONT. LOG OF BORING WCC-2 Fig.	60							1423	
Becomes wet. 75 Very dense, wet, olive brown, fine grained, SILTY SAND (SM). Project: DOUGLAS AIRCRAFT COMPANY CONT. LOG OF BORING WCC-2 Fig.	65	Dense, maist, olive, fine grained SILTY SAND (SM), some iron oxide stains.		3	X	42	6	1433	-
Very dense, wet, olive brown, fine grained, SILTY SAND (SM). 4 80 6 1512 Project: DOUGLAS AIRCRAFT COMPANY CONT. LOG OF BORING WCC-2 Fig.	70	· 						1500	
Project: DOUGLAS AIRCRAFT COMPANY CONT. LOG OF BORING WCC-2 Fig.	75	Y Very dense, wet, olive brown, fine grained,		4	X	68	6	1512	∖ <u>¥</u> Water at 73 feet.
CONT. LOG OF BORING WCC-Z	†							1544	
			CONT.	LC)G	OF	BORI	NG	WCC-2 Fig. B-1-2

DEPTH (feet)	DESCRIPTION	WELL LOG	, o Z	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
85	(continued) Very dense, wet, olive, fine grained to Very fine grained SILTY SAND (SM), micaceous, with some clay interbedding and iron oxide staining.		5		50/ 3"	5	1600	
95	Bottom of Boring at 90.5 feet.							Note: 48 gallons of city water used to offset hydrostatic head of flowing sands during well installation.
100		† † † † † †						
105		† † † † † †						
110		+ + + + + + + + + + + + + + + + + + +						
115		+ + + + + + + + + + + + + + + + + + + +						
120		+ + + + + + + + + + + + + + + + + + +						
,	ect: DOUGLAS AIRCRAFT COMPANY ect No.: 8741863D	EONT.	LC	∐ G	OF	BORI	NG	WCC-2 Fig. B-1-3

WOODWARD-CLYDE CONSULTANTS

RILLI AGENO DRILLI QUIP	NG CME 75, 10-inch H.S.A.	M. Smi	th	DA ST CO DE	EVATION ID DATI TE ARTED MPLETI PTH (FI	10-2	op of 6-87 92	ROCK DEPTH (ft)
YPE VELL 10 OF		0 Slot		ΒQ	RING (п.)	10	DIAMETER OF 4
AMPI VA TE F	ES -	HRS. 74	.0			Н. Rey	es	CHECKED BY B. Jacobs
DEPTH (feet)		WELL LOG		NF	Blow Count Count		Drilling Rate (Time)	REMARKS
5	Asphalt Damp, very dark grayish brown, fine grained SILTY SAND (SM) with small gravel. Soft, very moist, dark gray to black SILTY CLAY (CL). Becomes less moist, dark yellowish brown, stiff. Continued SILTY CLAY (CL). Becomes more stiff, no detectable ador.	A A A A A A A A A A A A A A A A A A A					0846	Background OVA reading = 4-6 ppm
15	Dense, moist, yellowish brown, CLAYEY SAND to						0855	
20-	SANDY CLAY (SC-CL).			والمرابعة	:		0857	No odor.
25							0905	No odor.
35	Lens of volcanic ash.						0913	333
Pro	ject: DOUGLAS AIRCRAFT COMPANY			G	0F	BORI	NG	WCC-3 Fig.
	ject No.:			7	\mathcal{O}_{I}	\cup \cup \cup \cup	140	B-2-

DEPTH (feet)	DESCRIPTION	WELL LOG	No.	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
40-	(continued) Stiff, moist, olive brown, SILTY CLAY (CL).						0921	
45	Lens of stiff, moist, alive, SANDY SILT (ML), micaceous with decomposed pieces of roots.		1	X	25	30	0924	Earthy odor.
50							0937	
55	Clay becomes more stiff, interbedded with lenses of dense, moist, yellowish brown, medium grained SILTY SAND (SM) with shells, partially cemented and crystalized calcite.		2	X	30	570	0945	Moderate chemical odor.
60							1005	
\$ \$ \$	Dense, moist, yellowish brown to olive gray, very fine grained SILTY SAND to SAND (SM-SP), micaceous.							Easier drilling.
65			3	X	46	440	1015	Moderate to strong chemical odor.
70	Very stiff, very moist, olive brown, SANDY SILT (ML), micaceous with iron oxide stains.							Very easy drilling.
‡			4	X	35	+1000	1035	Strong chemical odor.
75	Becomes wet. Very dense, wet, olive brown fine grained SAND (SP) to SILTY SAND (SM).		5	X	59	+1000	1047	∑ Water at 73.5 feet. Strong chemical odor.
80	Becomes medium grained.		6	X	N.R.	+1000	1112	
,	ect: DOUGLAS AIRCRAFT COMPANY ect No.: 8741863D	CONT.	LO)G	OF	BORI	NG	WCC-3 Fig. B-2-2

DEPTH (feet)			WELL LOG	No.	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
85-	(continued) Very dense, saturated, olive brown, fine to medium grained SAND (SP—SM) with some silt.	О e						1205	Moderate to strong chemical odor.
90-		_						1545	
95-	- Bottom of Boring at 92.0 feet.								Note: Used 59 gallons of city water to offset hydrostatic head of flowing sands during well installation.
100									
105	- - - -								
110									
115		-							
120									
125	ject: DOUGLAS AIRCRAFT COMPANY		,						
	ject No.: 8741863D		CONT.	LC	G	OF	BORI	NG	WCC -3 Fig. $B-2-3$

WOODWARD-CLYDE CONSULTANTS

BORING LOCATI	G WCC-4 See	Figure 2		E	LEVATIO ND DAT	N To	op af	casing @ 4	.9 69 ft
DRILLIN AGENC	A & R Drilling, Inc.		M. Smi	th 🖁	ATE TARTED		7-87		0-27-87
DRILLIN EQUIPE	EMENT CIVIL /3, IU-I	nch H.S.A.		C D	OMPLETI EPTH (f	ON C	91.5	ROCK DEPTH (ft)	
TYPE (OF 4" Sch. 40 PVC SCREEN PERFORA	.01 NOITA	0 Slot		IAMETER ORING (OF in.)	10	DIAMETER OF WELL (in.)	4
No OF SAMPL	ES UNDIST 'UNDIST.	8 'cc		- L	OGGED E	ΥE		CHECKED BY	l
WATER DEPTH	(ft) FIRST 75 COMPL	'24	HRS. 71	.6		Н. Rey ———	es	В. О	lacobs
DEPTH (feet)	DESCRIPTION		W ELL LOG	No.	Blow Count		Drilling Rate (Time)	REMA	ARKS
10	Asphalt Moist, grayish brown, SILTY CLAY SAND (CL). Moist, dark yellowish brown, SILTY						1230	Background reading = 4	
25	Lense of dark greenish black	k volcanic(?)							
— L Proi	ect: DOUGLAS AIRCRAFT COM	PANY	r 1 / 1		<u> </u>	_			Fig.
-	icat No:			LOG	OF	BORI	NG	WCC-4	i
	8741863D						WOO	DWARD-CLYDE CONS	B-3-1

DEPTH (feet)	DESCRIPTION	WELL LOG	óZ	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
40-								
45-	Very stiff, organic roots and plant detritus with orangish iron oxide staining.		1	X	18	8	1345	No odor.
50-								
55			2	X	23	8	1350	No odor.
60	Occasional fossiliferous gravel.							
65	Hard, light alive brown, fine SANDY SILT to SILTY fine SAND (SM).		3	X	43	5	1425	No odor.
70								
75	Becomes wet. Hard, damp, light olive brown, SILTY CLAY (CL) with iron axide staining.		4	X	42	7		⊻ Water at 75 feet.
	Very dense, light olive brown, fine grained SAND (SP) with little silt. 2 inch layer of CLAY (CL).		5	X	45	8	1530	No odor.
- '	ject: DOUGLAS AIRCRAFT COMPANY ject No.: 8741863D	CONT.	LC)G	OF	BORI		WCC-4 Fig. B-3-2

DEPTH (feet)	DESCRIPTION	WELL LOG	Ö	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
85	. (continued) Very dense, wet, light olive brown, fine grained SAND (SP) with little silt.							
90-	Maist, light olive brown, SILTY CLAY (ML—CL) Battom of Boring at 91.5 feet.). (7)(),	6	Χr	۷.R.	8	1700	No odor. Note: 45 gallons of city
95	- Soling at 51.5 leet.	+						water used to offset hydro- static head of flowing sands during well instal— lation.
100		+						
105		† † † †						
110		+ + + + + + + +			Man and the second seco			
115								
120		+						
125		+						
Proj	ect: DOUGLAS AIRCRAFT COMPANY	CONT.	LO	G	OF	BORI	NG	WCC-4 Fig.
	ect No.: 8741863D						w 00	B-3-3

ORING	G TON		WC	C-5	See	Figure	3	<u></u>		EL	EVATIO	N UM	· · · · · · · · · · · · · · · · · · ·	N/A	w. · · · · · · · · · ·
ORILLIN	NG	A &				DRILLE		TEXT		D/	ATE TARTED		4-87		4-87
ORILLIN EQUIPE	YG EMENT		CM	1E 75,	10	inch H.	S.A.			C	MPLET PTH (f	ON	91	ROCK DEPTH (ft)	_
MELL .	OF CASING	4" PV	/C, - S(CH. 40	SCREEN PERFORA	πον Lon	e Si	tar #0	130	DI.	AMETER DRING (OF	10	DIAMETER OF WELL (in.)	4
NO OF	.ES	וס	ST.		UNDIST.	4	COF	₹E _		Lo	XCCED 1	ΥE		CHECKED BY	
WATER DEPTH	t ⟨fŧ⟩	FIF	RST	73	COMPL.	70	24	HRS.70.3	5 1/:	2	ŀ	3. Jaco	bs	H. Re	es
DEPTH (feet)			DE	ESCRIPT	TON			W ELL LOG			AMPS Sount Count		Drilling Rate (Time)	REMARK	5
10	with Mois with	t, dark o little sa t, moder some so	rate brand.	own, SIL		LT (CL-N	/L)		~				1400	Background OVA reading = 3-4 p	pm
20	•	Becomes	dark	yellowish	brown.										
30							**********								
35															
Proj	ect: D	OUGLA	S AIF	RCRAF	T COMF	ANY			10				······································	1400 5	Fig.
	ect N								LU	G	UF	BORII	NG.	WCC-5	
,				374186) JU									OWARD-CLYDE CONSULTA	8-4-

DEPTH (feet)	DESCRIPTION	WELL	No.	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
40	Moist, dark yellowish brown, SILTY CLAY (CL). (continued) with some organic roots and iron oxide staining.						1445	
45	Dense, moist, dusky yellow to light olive brown, fine grained, SAND (SP) with little silt.		1	X	34	3		No odor.
55	Interbeds of Silty Sands and Clay.		2	X	37	5	1515	No odor.
65	↓ Becomes very dense.		3	X	70	4	1550	No odor.
75-	Becomes wet. Dense, wet, moderate alive brown, fine grown SILTY SAND (SM-ML).	rained	4	X	35	3		∑ Water at 73 feet. No odor.
	ect: DOUGLAS AIRCRAFT COMPANY ect No.: 8741863D	CONT.	LO	G	OF	BORII		WCC-5 Fig. B-4-2 DWARD-CLYDE CONSULTANTS

DEPTH (feet)	DESCRIPTION	WELL LOG	Š	Туре	Blow	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
85-	Dense, wet, moderate alive brown, fine grained SILTY SAND (SM-ML).							
90-					:			No sample collected Augers sanding—in.
95	Bottom of Boring at 91 feet.							Note: 55 gallons of city water was used to aid well install—ation.
		+ + + + + + + + + + + + + + + + + + + +						
100		+						
105		+						
110		+ + + + + + + + + + + + + + + + + + + +						
115		+						
120		+						
125		+						
	ect: DOUGLAS AIRCRAFT COMPANY ect No.: 8741863D	CONT.	LO	G	OF	BORI	NG	WCC-5 Fig. 8-4-3

BORING LOCATION See Location Map			A	EVATIONO DAT	UM		Not Available
DRILLING A & R Drilling, Inc. DRILLING DRILLING ONE 45 9 : O.D. L. 6	M. Rom	nero	10/ S1	ATE FARTED	8-2	4-87	DATE FINISHED 8-24-87
EQUIPEMENT CME 43, a-Inch U.D., n.:			DE	DMPLET EPTH (F AMETER	<u>4) </u>	41	ROCK DEPTH (ft) DIAMETER OF
WELL CASING PERFORATION No OF DIST. UNDIST.	N/A CORE	····	80	ORING (in.)	8	WELL (in.) CHECKED BY
SAMPLES	24 HRS.	<u> </u>	$-\int_{-\infty}^{\infty}$		Glaes	man	M. Razmdjoo
	<u> </u>	T	 ;	SAMP	LE		
DESCRIPTION	WELL		INF	ORMA	NOITA	<u> </u>	551115175
DESCRIPTION (test)	LOG			يد	0.V.A.	_ ₽Ę	REMARKS
		ģ	Type	Blow Count	(ppm)	Drilling Rate (TIme)	
Asphalt covering.	+	1	M	9	10		Definite odor.
Medium dense, damp, yellowish brown, SILTY fine to medium grained SAND (SM), micaceo	us,[A			-	
4-inch CLAYEY layer near surface. (FILL)	_ 🖈						
Loose, damp, yellowish brown, fine to mediur	n ‡						
grained SAND (SP—SM), with some SILT, micaceous, (FILL).	‡	2	M	2	52	1240	Strong odor.
	Ī		H				J • • • • • • • • • • • • • • • • • • •
	+						
†	‡						_
10	Ī	_	H	_			
Color changing to gray with some yellowish brown mixed in. Less silt,	Ī	3	М	2	600	1250	Strong odor.
micaceous (SP).(FILL)	‡						
Stiff, moist, olive brown, CLAYEY SILT	- +						
(ML), micaceous.	Ī						
15	-	4	X	11	>1000	1300	Strong odor.
 	‡		H				
Stiff, moist, olive brown, SANDY SILT	- 🕂						
(ML), micaceous.	Ŧ						
20	Ī	_	\forall	0	>1000	4740	C1
‡	‡	5	Å	9	121000	1310	Strong odor.
†	†						
Stiff to Very stiff, maist, alive brown, CLAYEY SILT (ML).	7 🕇						
†	Ī						
25	+	6	M	14	>1000	1320	Strong odor.
† · · · · · · · · · · · · · · · · · · ·	‡		H				
‡	‡						
Ī	İ						
30	1	7	H	24	1000	1775	Channe die
‡	‡	'	Д	20	71000	1335	Strong odor.
Ī	‡						
Ţ	Ī						
75	‡						
With some fine grained SAND (ML).	‡	8	M	10	>1000	1345	Strong odor.
<u>†</u>	‡		П				
Project: DOUGLAS AIRCRAFT COMPANY					L	L	T 5:-
Designat No.		LC)G	OF	BORI	NG	15TB Fig.
8741863C						WOO.	B-5-1

DEPTH (feet)	DESCRIPTION	WELL LOG	No.	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)		REMARKS	
40	Stiff, moist, olive brown, CLAYEY SILT (ML), micaceous.					>1000		Standard		
	Bottom of Boring at 41 feet.	+	9	Å	17	>1000	1400	Strong	odor.	
	· - - -	‡				:				
45	: -	‡								
		<u> </u>								
	- - -	†								
50	-	‡								
	: -	+								
55-		+								~ .
		Ī								
	· - · ·	‡								
60-	<u>-</u>	‡								
	- - -	Ţ								
65	· - ·	‡								
	-	<u> </u>								
		<u> </u>	<u>.</u>							
70		†								
	- 	+								
75	- -	<u> </u>								
		<u> </u>								
	- - -	†								
80	- -	+								
		<u> </u>								
	ject: DOUGLAS AIRCRAFT COMPANY ject No.: 87418630	CONT.	. LC)G	OF	BOR	ING	15TB		Fig. B-5-2

OCATI	ON	See Location Map				EL	EVATION ID DAT	N JM		Not Available
ORILLIN	IG A O D D		R M.	Rome	ero	DA ST	TE ARTED	8-24		DATE 8-24-87
RILLIN		45, 8-inch O.D., H	I.S.A.			CO	MPLETI PTH (H	ON	41	ROCK DEPTH (ft)
YPE (OF N/A	SCREEN PERFORATION		/A		יום	weter	OF	8	DIAMETER OF N/A
o OF	DIST.	_ UNDIST. 9	COR			LO	RING ()	Υ		CHECKED BY
AMPL MATER EPTH	(ft) FIRST	COMPL	124 F	IRS		-	Ρ.	Glaesi	man	M. Razmdjoo
			· [SAMPI ORMA			
DEPTH (feet)	DES	SCRIPTION		WELL		TT	OIMA	TION	lne)	REMARKS
E S				LOG	, Š	Туре	Blow Count	0.V.A. (ppm)	Orilling Rate (Time)	
	Asphalt covering, Medium dense, mois fine to medium grai (FILL)	t, yellowish brown, SILT ned SAND (SM), micaci	Y eous.		1	X	11	75		Little odor.
5					2	X	2	200	1510	Sample was between the tank backfill and natural material. One edge of sample included natural material, SANDY SILT (MI
10	Stiff to very stiff, mo SILT (ML), micaceou -	oist, yellowish brown, Sa s.	ANDY		3	X	16	30	1515	No odor.
15	•		+ + + + + + + + + + + + + + + + + + + +		4	X	12	45	1530	Slight odor.
20			******		5	X	17	60	1540	Slight odor.
25			+ + + + + + + + + + + + + + + + + + + +		6	X	17	950	1545	Definite odor.
30	Olive brown, C	LAYEY SILT layer (ML).	++++		7	X	18	>1000	1600	Strang odor.
35			+ + + + + + + + + + + + + + + + + + + +		8	X	16	>1000	1610	·
Pra	ject: DOUGLAS AIR	CRAFT COMPANY				 				17TD Fig.
•	ioot No.	1)G	OF	BORI	NG	1/10
)~~\	741863C								8-6-

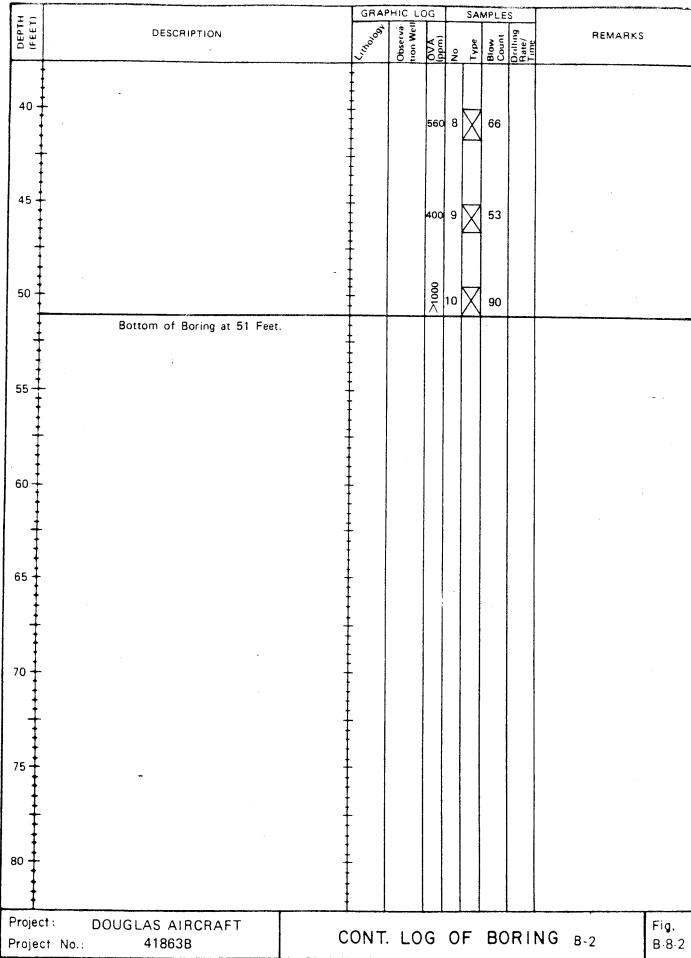
DEPTH (feet)	DESCRIPTION		WELL LOG	No.	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)		REMARKS	6
40	Very stiff, moist, olive brown, CLAYEY SILT (ML), little mica.	- - -		9	X	26	>1000	1620			-
	Bottom of Boring at 41 feet.	-						i		Vertical	boring.
45		-									
50											
55		-									
60	- - - - - - -	-	• • • • • •						-		
65	- -	-									
† †		-									
70		-									
75		-									
80		-									
	ject: DOUGLAS AIRCRAFT COMPAN) ject No.: 87418630		CONT.	LC	G)	OF	BORI	NG	17TE	3	Fig.
- 10	8741863C	ļ						woo	DWARD-C	LYDE CONSULT	B-6-2

BORING B-1 Tanks T-19 as	nd T-20		ELEVATION AND DATUM										
DRILLING AGENCY Datum Exploration	DAILLER K	eith			STARTED 4 April 1986 FINISHED 4 April 1986								
ORILLING EQUIPMENT Mobile 8-53, 9.5 Hollow Stem Auger				COM	PLE	TIO	N	50	IBOC	K TH(FT)			
DIAMETER AND TYPE OF WELL CASING None Installed		-		OF S	NO	PLE	SIDIS	Ť	UND	IST.	CORE		
TYPE OF PERFORATION Not Applicable				W	ATE	R (FT	FIR	ST_	СОМ		24 HR	S.	
TYPE OF PERFORATION No. 60 Sand (85%) / BellbackFill	ntonite Flour (15%)		LOG				· · · · · · · · · · · · · · · · · · ·	CHE	CKED B	Y :		
TYPE OF Asphaltum				1		M.	Leac	h		B. J	acobs		
	1	GRAPH	IC L	og		SAR	MPLE	s					
DESCRIPTION	Ţ	Jarologa Si	QV Pp	A m)				٤.		REMA	RKS		
8 =		STO S	am-		è	Type	Jour John	Orilling Rate/ Time					
Asphalt		V 1	-	911 0	- T	-	<u> </u>			······································			
Rust colored, SILTY SAND (SM)		İ											
		_											
Medium stiff, moist, dark brown, SAND	TULAT	ا				abla	6	i					
†	‡	١	0.0		'	X	4						
5 + Becomes very moist	‡						3						
J J J J J J J J J J J J J J J J J J J	1					١							
1 1	<u> </u>		ĺ										
1	1						15						
Becoming light reddish brown and hard	1	3	10		2	X	22						
10 + Decoming right reduish brown and hard	+	•					35						
	+	1	Ì									٠.	
	Ŧ		ļ										
I I	Ŧ						6						
1 ‡	‡	3	14		3	X	12						
15 Becoming light brown and very stiff	‡.	-	į			\Box	16						
 	‡												
	‡												
Medium dense, moist, light brown, CLA	YEY, fine-												
grained SAND (SC)	‡	1	00		4	\bigvee	11 8						
20 +	‡					\triangle	13						
Becoming lighter brown and drier	‡		1										
1 1	‡	•											
1	‡	•											
1 ‡	· †		50		_	∇	8 16						
25	<u> </u>	. 1	ן טפ		5	\triangle	18						
Very stiff, moist, light brown, SANDY (CLAY (CL)							,					
l t	Ī						1						
 	+		1			L_							
<u> </u>	Ŧ	4	5		6	∇	8 15						
20		. [-		ا آ	abla	30						
Very stiff, moist, Light brown, CLAY (C	L) ‡	•											
1 1	‡],		1 1					
l I	‡		-										
Very dense, light gravish-brown, fine-gra	ined		4		7		9 27						
SAND (SP)	‡		1		'	abla	50						
35	‡						(4"	"					
†	‡		ļ										
<u> </u>						<u> </u>		<u> </u>					
Project: DOUGLAS TORRANCE			•	^^	,	٦.	0	∩ □ 1	NG	B-1		Fig.	
Project No.: 41863A			L	.UG	(JF	D	ORI	IV G	D-1		B-7-1	
LA/OR-0783-235R				tie Weet to		W	000	WARN	-CIY	E CON	SULTA	NTS	

			GRAP	HIC L	.OG	<u> </u>	SAN	I PLE	S	
DEPTH (FEET)	DESCRIPTION		Jinolog 1	O\ (pr Sam - ple	/A m) Back gn'd	No.	a.		Drilling Rate/ Time	REMARKS
40 -	·				7	8	X	14 24 36		
40	Moist, light brown, CLAY (CL) with some fine- grained SAND	-								
45	Dense, brownish-gray, SILTY, fine-grained SAN	ID (SM)			5	9	X	12 17 30		·
40	Hard, moist, brown CLAY (CL)									
-	Very dense, gray, fine-grained SAND (SP)		-		18	10	X	13 22 34		
50 -	Bottom of Boring at 50 feet	-								
		1 1	-		,					
55	. 									· .
60 -	· -		-							
		1								
65	· -		-							
	<u>-</u>	1								
70	• • •		-							
	.	-	_							
75	· · ·		-							·
	·	-	-					-		
80 -	- -	•	_							
Ī										
Proje	ect: DOUGLAS TORRANCE		ON 7	. ,	^^		_	٠.		NC 01 Fig.
Proje	ect No.: 41863A	C	TNO	. L	UG	U	r	D(ואנ	NG B-1 B-7-2

PRILLING Simco 2400SK, Datum D27-L (Dietrich Gasoline Engine) COMPLETION 51' DEPTH(FT) DIAMETER AND TYPE 6" Hollow Stem Auger; No Casing in Installed OF SAMPLES OF S	1/5/87 _ CORE _
PORTULING Simco 2400SK, Datum D27-L (Dietrich Gasoline Engine) COMPLETION 51' DEPTH(FT) DIAMETER AND TYPE 6" Hollow Stem Auger; No Casing in Installed OF SAMPLES OF SAMPLES OF SAMPLES	_
OF WELL CASING 6" Hollow Stem Auger; No Casing in Installed OF SAMPLES OF SAMPLES	ORE
PERFORATION N/A DEPTH (FT)	HAS_
BACKFILL BACKFILL LOGGED BY: Jacobs/ Donaldson/	
SEAL OF Concrete, #60 Silca Sand (85%) and Bentonite (15%) Gibson	d
GRAPHIC LOG SAMPLES DESCRIPTION	
	(S
3 5 6 5 7 F 8 8 6 8 F	
Concrete and pea gravel.	dor
Stff, damp, olive to brown SILTY CLAY (CL-CH).	
5 - 300 2 NR Hydrocarbon od staining through boring.	
	.
140 3 NR	
Becomes olive to dark olive green.	
20	
25	
Gravel lense (to 2"Ø). A60 7 NR Drilling difficult drilling. Commence drilling.	ling at 31'
Becomes hard and grey, sandy, and thinly laminated. 35 Becomes silty. 7 75	n datum
Project: DOUGLAS TORRANCE	Fig.
Project No.: 41863B LOG OF BORING B-2	B-8-1
LA/OR-0783-235R WOODWARD - CLYDE CONSU	

WOODWARD-CLYDE CONSULTANTS



LOCA	NG TION Boiler Room at T-19, 20 (C-6 Facility)		_ crecket protect	ELE	VATI	ÔN LUM	Арпа	cimately 52 Feet MSL	
DRIL		(it Step	hens	DAT			/6/87	PATE FINISHED 1/6/87	
	NG Datum D27-L (Dietrich Gasoline Engine)			ÇQ	PLET		31'	POCK DEPTH(FT)	
DIAM	ETER AND TYPE 6" Hollow Stem Auger; No Casing	Install	ed		NO.	FRIDI	ST	UNDIST. 12 TORE	
TOPE	ORATION N/A			W	ATEP	FI	RST Non	e COMPL 24 HAS	5_
TYPE	OF PERFORATION N/A	-0-0-0-		THE RESERVE	GED			CHECKED BY:	
TYPE	OF Concrete, #60 Silca Sand (85%) and Bentonite (1	5%)			S.	Donald	tson	Sd	
		GRAP	HIC LO	OG		AMPL	S		
DEPTH (FEET)	DESCRIPTION	, Sec	2 3				E	REMARKS	
ے م		jer	9 5	PPW PPM	9	2 2	Orilling Rets/ Tyme		
	Concrete								
:	Dense, damp, light grey, fine SAND (SP) with	<u> </u>							
:	FeO ₂ staining and hydrocarbon odor.	<u> </u>							
:	Cott dans dad beaus CHTV CLAV (CLCHV	‡							
5 -	Stiff, damp, dark brown SILTY CLAY (CL-CH).	+			_	_			
		† .		310		48			
						7		•	
		†							
-		†							
10-	Gravel lense ($\leq 2''\emptyset$).	-			k	7 30			!
	Becomes hard.			105	$ ^2 $	50/	1 1		,
1 3		•				5"			
1 7									
1 1									
15	Medium dense, damp, grey CLAYEY SAND	-			l k	7		Easier drilling	
]	(SC) strong hydrocarbon odor.			62	3	27			
1 1									
									
20	Becomes dense and greyish brown.	<u> </u>		350		47			
				350		△"			
1 1	-	<u> </u>							
‡		†							
	T. Bosomos ways desired	†							
25	Becomes very dense, grey, more SANDY (SC-SP).	†		260	5	65			
					ľ	\preceq \Box			
‡	• · · · · · · · · · · · · · · · · · · ·	†							
‡		•							
‡		†		340	6	X 66			
30	Power of Daily and Co.	F			H	-	++		
	Bottom of Boring at 31 Feet.	ŀ							
-		-						·	
		ł						•	
35		<u> </u>				ľ			
3°		<u> </u>							
 		<u> </u>							
Proje	MIL DOUGLAS ALBSBAST	<u></u>	L	<u> </u>					ig.
Proje			L	OG	0	F E	ORIN	10 ~ 1	н у. В-9-1
	ect No.: 41863B				-				-
LA/OR-	0783-235R					WOOD	WARD	-CLYDE CONSULTAN	ITS

ORING	ion Douglas Aircraft C-6 Facility 3				EVATIO ND DAT			lot Available	
RILLIN GENC	y A & R Drilling	M. Sm	ith	D/ S1	ATE TARTED	5-26	5–87	I HITOTICO	3-87
RILLIN	MENT OME /3 6-INCH O.D., H.S	S.A.		DE	OMPLETI EPTH (f	ŧ) į	31.5	ROCK DEPTH (ft)	_
	CASING PERFORATION	_			AMETER ORING (in.)	8	DIAMETER OF WELL (in.)	_
O OF AMPL	ES 10	CORE .	_		D (3890)	gr Glaes	man	CHECKED BY	
ATER EPTH	(ft) FIRST 'COMPL	124 HRS.	_		Г.	Gides	HIGH	B. Jaco	DDS
(feet)	DESCRIPTION	WELL			SAMP ORMA	TION	lme)	REMARK!	5
7.5		LOG	No.	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (Time)	_	
+	5" Asphalt Cover. Damp, reddish brown, SILTY fine grained SAN (SP), with some CLAY and GRAVEL. (logged from cuttings only)	D					1330		
5	Damp, yellowish brown, SILTY fine grained SA (SM—SP).	ND							
10	· · · · · · · · · · · · · · · · · · ·	+				1			- .
15		+ + + + + + + +		X		40	1400		
20-	Damp, medium gray, CLAYEY SILT (ML), some fine grained SAND, brown oily staining in tube #4.	e + + + + + + + + + + + + + + + + + + +	2	X	·	500	1420	Strong odor.	
5		+	3	X		550	1450	Strong odor.	
0			4	X		550	1515	Strong odor.	
5	Very damp (product), brownish gray, SANDY SILT to SILTY SAND (SM), free product on tubes.	- 	5	X		+1000	1535	Strong odor.	
	ect: DOUGLAS AIRCRAFT COMPANY	- Ţ ····	L	1		L	!		C:-
	icat No.		LC)G	OF	BORI	NG	B-4	Fig
raj	ject No.: 41863B								8-10

DEPTH (feet)	DESCRIPTION	WE LL LOG	No.	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
40-	Damp, gray, CLAYEY SILT (ML).		6	X	N/A	700	1550	Strong odor.
45			7	X	11	400	1620	Strong odor.
50	Damp, brown, SILTY fine SAND (SM-SP), micaceous.		8	X	11	400	1645	Strong odor.
55			9	X	11	+1000	1710	- ·
60			10	X	11	100	1750	Slight to moderate odor.
65	Bottom of Boring at 60.5 feet.						·	Note: Angle drilled at 26°. No blow counts taken due to angle drilling.
70								
75								
80								•
†	ect: DOUGLAS AIRCRAFT COMPANY	CONT			05		NI C	D_4 Fig.
	ject No.: 41863B	CONT.	LU		UF	ROKI		B-4 B-10-2 OWARD-CLYDE CONSULTANTS

APPENDIX C

WATER AND SOIL ANALYTICAL RESULTS WITH CHAIN-OF-CUSTODY FORMS

(ABC/DAPPA)

April 2, 1987

WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Allistair Callendar

JOB NO. 5557



ANALYTICAL CHEMISTS

LABORATORY REPORT

Samples: One (1) water sample

Date Received: 3-27-87 Purchase Order No: 41863B

The sample was analyzed for volatile organic compounds by GCMS according to EPA method 624. The results are reported in the

following Organics Analysis Data Results sheets.

Page 1 of 1

Michael Shelton Senior Chemist

D.J. Northington, Ph.D. Technical Director

CLIENT: WOODWARD-CLYDE

SAMPLE: MW-1(41)A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

03/27/87

GCMS FILENAME:

5557V3

LEVEL:

LOW

MATRIX:

WATER

DATE PREPARED:

04/01/87

DATE ANALYZED:

04/01/87

STANDARD ID:

V0A280

INSTRUMENT ID:

5101

SAMPLE AMOUNT:

100UL

DETECTION

				DETECTION
CAS #	COMPOUND	CONC:	UG/L(PPB)	LIMIT
B==========		=======	========	==========
74-87-3	CHLOROMETHANE		ND	300.
74-83-9	BROMOMETHANE		ND	300
75-01-4	VINYL CHLORIDE		ND	300.
75-00-3	CHLOROETHANE		ND	3 00.
75-09-2	METHYLENE CHLORIDE		ND	500.
67-64-1	ACETONE		ND	50 0.
107-02-8	ACROLEIN		ND	500.
107-13-1	ACRYLONITRILE		, ND	500.
75-15-0	CARBON DISULFIDE		NE	50.
75-35-4	1,1-DICHLOROETHENE		2800	5 0.
75-34-3	1,1-DICHLORGETHANE		NI	5 G.
156-60-5	TRANS-1, 2-DICHLORDETHENE		, ND	50
109-99-9	TETRAHYDROFURAN		ND	50.
75-69-4	TRICHLOROFLUOROMETHANE		NE	50
76-13-1	FREON-TF		ND	5 0.
106-93-4	ETHYLENE DIBROMIDE		ND	5 0.
123-91-1	1,4-DIOXANE		ND	5 0.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	50
67-66-3	CHLOROFORM		ND	50
107-06-2	1,2-DICHLOROETHANE		ND	50.
78-93-3	2-BUTANONE		NE	E OI
71-55-6	1,1,1-TRICHLORDETHANE		30 0.	5 0.
16-23-5	CARBON TETRACHLORIDE		ND	5 0.
108-05-4	VINYL ACETATE		ND	300
75-27-4	BROMODICHLOROMETHANE		ND	5 0
79-34-5	1, 1, 2, 2-TETRACHLOROETHANE		ND	50
78-87-5	1,2-DICHLOROPROPANE		NE	50
10061-02-6	TRANS-1, 3-DICHLOROPROPENE		NE:	50
79-01-6	TRICHLOROETHENS		4600	50.
124-48-1	DIBROMOCHLOROMETHANE		ND	50
79-00-5	1,1,2-TRICHLORDETHANE		NL:	5 0
71-43-2	BENZENE		85	50
10061-01-5	CIS-1,3-DICHLOROPROPENE		NE NE	5 .7
110-75-8	2-CHLOROETHYLVINYL ETHER		NE	500.
75-25-2	BROMOFORM		ND	5 0.
119-78-6	2-HEXANDNE		NI NI	36. 36.
108-10-1	4-METHYL-2-PERTANDRE	•	NE NE	300
127-18-4	TETRACHLOROTTHENE		NE NE	5 :
108-88-3	TOLUENE		ND	5 0.
100-00-0	FOLVENE		142	J O.

CLIENT: WOODWARD-CLYDE

SAMPLE: MW-1(41)A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

03/27/87

GCMS FILENAME:

5557V3

LEVEL:

LOW

MATRIX:

WATER

DATE PREPARED:

04/01/87

DATE ANALYZED:

04/01/87

STANDARD ID:

VDA280

5101

SAMPLE AMOUNT:

100UL

INSTRUMENT ID:

CAS # COMPOUND

CONC: UG/L(PPB)

DETECTION LIMIT

			==== ====
108-90-7	CHLOROBENZENE	ND	50
100-41-4	ETHYLBENZENE	NE NE	5 0.
100-42-5	STYRENE	ND	5 0.
95-47-6	TOTAL XYLENES	ND	5 0.
108-41-8	M-CHLOROTOLUENE	ND	50 **
95-50-1	1,2-DICHLOROBENZENE	ND	50
541-73-1	1,3-DICHLOROBENZENE	ND	5 0.
106-46-7	1,4-DICHLOROBENZENE	ND	5 0.
120-82-1	1,2,4-TRICHLOROBENZENE	ND	5 0

CLIENT: WOODWARD-CLYDE

SAMPLE: MW-1(41)A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

1 NONE FOUND

VOA

Data Reporting Qualifiers

- Value If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.
- ND Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.
- TR Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

Woodward-Clyde Consultants SHIPMENT NO .:___ CHAIN OF CUSTODY RECORD DATE 3 /27/87 Brance PROJECT NAME: 41863B PROJECT NO .: _ Type of Preservation Type of Sample Analysis Required * Type of Container Sample Number Location Temp Chemical Material Method 1641)A Huter Grab .. L " u 16 Total Number of Samples Shipped: 5 Sampler's Signature: Relinquished By: Bleen Date Received By: 327/8 Signature___ Jaiops Printed Name Michael Shelton Printed Name_ Time NCAS Company___ Company____ Reason___ Analysis Date Received By: Relinquished By: Signature_ Signature_ Printed Name_ Printed Name_ Time Company__ Company_ Reason____ Date Received By: Relinquished By: Signature_ Signature_ Printed Name_ Printed Name_ Time

Company____

Received By: Signature ___

Company___

Printed Name___

Special Shipment ' Handling - Storage Requirements.

Company___

Signature_

Company____ Reason ____

Relinquished By:

Printed Name_

Reason_

* Note — This does not constitute authorization to proceed with analysis

LA OR-0163-421

Date

Time

April 16, 1987

WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Allistair Callendar

JOB NO. 5677



ANALYTICAL CHEMISTS

LABORATORY REPORT

Samples: Seven (7) water samples

Date Received: 4-13-87 Purchase Order No: 41863B

Three of the samples were analyzed for volatile organic compounds by GCMS according to EPA method 624. The results are reported in the following Organics Analysis Data Results Sheets.

Page 1 of 1

Michael Shelton Senior Chemist

D.J. Northington, Ph.D. Technical Director

WOODWARD CLYDE CLIENT:

SAMPLE: MW-1, A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

04/13/87

OCMS FILENAME:

5677V2

 $\omega_{i,j}(\mathcal{L}_{i,j}) \leq C_{i,j}(\mathcal{L}_{i,j}) \leq C_{i,j}(\mathcal{L}_{i,j}) + C_{i,j}(\mathcal{L}_{i,j})$

LEVEL:

LOW

MATRIX:

WATER

DATE PREPARED:

04/15/87 VDA457

DATE ANALYZED:

04/15/87

STANDARD ID:

INSTRUMENT ID: #5100

SAMPLE AMOUNT: 100UL

			DETECTION
CAS #	COMPOUND	CONC: UG/L(PPB)	LIMIT
			==========
74-87-3	CHLOROMETHANE	ND	3 00.
74-8 3-9	BROMOMETHANE	ND	3 00.
75-01-4	VINYL CHLORIDE	ND	30 0.
75-0 0-3	CHLOROETHANE	ND	30 0.
75-09-2	METHYLENE CHLORIDE	ND	5 00.
67-64-1	ACETONE	ND	500
107-02-8	ACROLEIN	ND	500 .
107-13-1	ACRYLONITRILE	ND	5 00.
75-15-0	CARBON DISULFIDE	ND	50 .
75-35-4	1,1-DICHLOROETHENE	3 700.	5 0.
75-34- 3	1,1-DICHLOROETHANE	ND	5 0.
156-60-5	TRANS-1, 2-DICHLOROETHENE	ND	5 0.
109-99-9	TETRAHYDROFURAN	ND	5 0.
75-69-4	TRICHLOROFLUOROMETHANE	ND	5 0.
76-13-1	FREON-TF	ND	5 0.
106-93-4	ETHYLENE DIBROMIDE	ND	5 0.
123-91-1	1,4-DIOXANE	ND	5 0.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	5 0.
67-66-3	CHLOROFORM	ND	5 0.
107-06-2	1,2-DICHLOROETHANE	ND	50.
78-93-3	2-BUTANONE	ND	500.
71-55-6	1, 1, 1-TRICHLORGETHANE	2 60.	5 0.
16-23-5	CARBON TETRACHLORIDE	ND	5 0.
108-05-4	VINYL ACETATE	ND	300.
75-27-4	BROMODICHLOROMETHANE	ND	5 0.
79-34-5	1, 1, 2, 2-TETRACHLORDETHANE	ND	5 0.
78-87-5	1,2-DICHLOROPROPANE	ND	5 0.
10061-02-6	TRANS-1, 3-DICHLOROPROPENE	ND	50
79-01-6	TRICHLOROETHENE	5500.	5 0.
124-48-1	CHLORODIBROMOMETHANE	ND	5 0
79-00-5	1, 1, 2-TRICHLORDETHANE	ND	5 0.
71-43-2	BENZENE	110.	5 0.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND.	5 0.
110-75-8	2-CHLORDETHYLVINYLETHER	ND	5 00.
75-25-2	BROMOFORM	ND	5 0.
119-78-6	2-HEXANDNE	ND	300.
108-10-1	4-METHYL-2-PENTANONE	ND	300.
127-18-4	TETRACHLOROETHENE	ND	5 0.
108-88-3	TOLUENE	ND	5 0.

WOODWARD CLYDE CLIENT:

SAMPLE: MW-1, A

- ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 04/13/87

GCMS FILENAME:

5677V2

LEVEL:

LOW

MATRIX:

WATER

DATE PREPARED:

04/15/87 **VDA457**

DATE ANALYZED:

04/15/87

STANDARD ID:

INSTRUMENT ID:

5100

SAMPLE AMOUNT: 100UL

CAS #	COMPOUND	CONC: UG/	L(PPB)	DETECTION LIMIT
法国教室教室政政政政			*****	*********
108-90-7	CHLOROBENZENE		ND	5 0.
100-41-4	ETHYLBENZENE		ND	5 0.
100-42-5	STYRENE		ND	5 0.
95-47-6	TOTAL XYLENES		ND	5 0.
108-41-8	M-CHLOROTOLUENE		ND	5 0.
541-73-1	1,3-DICHLOROBENZENE		ND	5 0.
106-46-7	1,4-DICHLOROBENZENE		ND	5 0.
95-50-1	1,2-DICHLOROBENZENE		ND	5 0.
120-82-1	1, 2, 4-TRICHLOROBENZENE		ND	5 0.

CLIENT: WOODWARD CLYDE

SAMPLE: MW-1, A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

1 NONE FOUND

WOODWARD CLYDE CLIENT:

SAMPLE: MW-1, B

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

04/13/87

GCMS FILENAME:

5677V3

LEVEL:

LOW

MATRIX:

WATER

DATE PREPARED:

04/15/87

DATE ANALYZED:

04/15/87

STANDARD ID:

VDA457

INSTRUMENT ID:

5100

SAMPLE AMOUNT:

100UL

ة بهؤون

CAS #	COMPOUND	CONC:	UG/L(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE	22222	ND	300.
74-83-9	BROMOMETHANE		ND	30 0.
75-01-4	VINYL CHLORIDE		ND	30 0.
75-00-3	CHLOROETHANE		ND	30 0.
75-09-2	METHYLENE CHLORIDE		ND	500 .
67-64-1	ACETONE		ND	5 00.
107-02-8	ACROLEIN		ND	5 00.
107-13-1	ACRYLONITRILE		ND	50 0.
75-15-0	CARBON DISULFIDE		ND	5 0.
75-35-4	1,1-DICHLOROETHENE		25 00.	5 0.
75-34-3	1,1-DICHLOROETHANE		ND	5 0.
156-60-5	TRANS-1, 2-DICHLOROETHENE		ND	5 0.
109-99-9	TETRAHYDROFURAN		ND	5 0.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5 0.
76-13-1	FREON-TF		ND	5 0.
106-93-4	ETHYLENE DIBROMIDE		ND	5 0.
123-91-1	1,4-DIOXANE		ND	5 0.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5 0.
6 7-66-3	CHLOROFORM		ND	5 0.
107-06-2	1,2-DICHLOROETHANE		ND	5 0.
78-93-3	2-BUTANONE		ND	50 0.
71-55-6	1,1,1-TRICHLORDETHANE		120.	5 0.
16-23-5	CARBON TETRACHLORIDE		ND	5 0.
108-05-4	VINYL ACETATE		ND	300.
75-27-4	BROMODICHLOROMETHANE		ND	5 0.
79-34-5	1, 1, 2, 2-TETRACHLORDETHANE		ND	5 0.
78-87-5	1,2-DICHLOROPROPANE		ND	5 0.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5 0.
79-01-6	TRICHLOROETHENE		3 600.	5 0.
124-48-1	CHLORODIBROMOMETHANE		ND	5 0.
79-00-5	1,1,2-TRICHLOROETHANE		ND	50.
71-43-2	BENZENE		ND	5 0.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5 0.
110-75-8	2-CHLOROETHYLVINYLETHER		ND	500.
75-25-2	BROMOFORM		ND	5 0.
119-78-6	2-HEXANDNE		ND	30 0.
108-10-1	4-METHYL-2-PENTANONE		ND	30 0. 5 0.
127-18-4	TETRACHLOROETHENE		ND	50. 50.
108-88-3	TOLUENE		ND	3 U.

CLIENT: WOODWARD CLYDE

SAMPLE:

MW-1, B

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

1 NONE FOUND

CLIENT: WOODWARD CLYDE

SAMPLE: TRIP BLANK

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

04/13/87

OCMS FILENAME:

567744

LEVEL:

LOW

MATRIX:

WATER

DATE PREPARED:

04/15/87

DATE ANALYZED:

04/15/87

STANDARD ID:

VDA457

INSTRUMENT ID:

5100

SAMPLE AMOUNT:

5. DML

OWENI ID: 31

CAS #	COMPOUND	 UG/L(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE	ND	5 .
74-83-9	BROMOMETHANE	ND	5 .
75-01-4	VINYL CHLORIDE	ND	5 .
75 -00-3	CHLOROETHANE	ND	5 .
75-09-2	METHYLENE CHLORIDE	ND	10.
67-64-1	ACETONE	ND	10.
107-02-8	ACROLEIN	ND	10.
107-13-1	ACRYLONITRILE	ND	10.
75-15-0	CARBON DISULFIDE	ND	1.
75-35-4	1,1-DICHLOROETHENE	ND	1.
75-34-3	1,1-DICHLOROETHANE	ND.	1.
156-60-5	TRANS-1, 2-DICHLOROETHENE	ND	1.
109-99-9	TETRAHYDROFURAN	ND	1.
75-69-4	TRICHLOROFLUOROMETHANE	ND	1.
76-13-1	FREON-TF	ND	1.
106-93-4	ETHYLENE DIBROMIDE	ND	1 .
123-91-1	1,4-DIOXANE	ND	1.
96-12-B	1,2-DIBROMO-3-CHLOROPROPANE	ND	1.
67-66-3	CHLOROFORM	ND	1.
107-06-2	1,2-DICHLOROETHANE	ND	1.
78-93-3	2-BUTANONE	ND	10.
71-55-6	1,1,1-TRICHLOROETHANE	ND	1.
16-23-5	CARBON TETRACHLORIDE	ND	1.
108-05-4	VINYL ACETATE	ND	5 .
75-27-4	BROMODICHLOROMETHANE	ND	1 .
79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	ND	1.
78-87-5	1,2-DICHLOROPROPANE	ND	1.
10061-02-6	TRANS-1, 3-DICHLOROPROPENE	ND	1.
79-01-6	TRICHLOROETHENE	ND	1.
124-48-1	CHLORODIBROMOMETHANE	ND	1.
79-00-5	1, 1, 2-TRICHLORDETHANE	ND	$\overline{f 1}$.
71-43-2	BENZENE	ND	1.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	1.
110-75-8	2-CHLOROETHYLVINYLETHER	ND	10.
75-25-2	BROMOFORM	ND	1.
119-78-6	2-HEXANDNE	ND	5.
108-10-1	4-METHYL-2-PENTANONE	ND	5
127-18-4	TETRACHLOROETHENE	ND	1 .
108-88-3	TOLUENE	ND	1.

CLIENT: WOODWARD CLYDE

TRIP BLANK SAMPLE:

ANALYSIS TYPE: EPA METHOD 8240 (624)

DRGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

04/13/87

GCMS FILENAME:

567744

LEVEL:

MATRIX:

WATER

LOW

DATE PREPARED: STANDARD ID:

04/15/87

DATE ANALYZED:

04/15/87

VDA457

INSTRUMENT ID:

5100

SAMPLE AMOUNT:

5. DML

DETECTION

CAS #	COMPOUND	CONC:	UG/L(PPB)	LIMIT
建工业和工程工程工程工程			E2%CE2=EE	
108-90-7	CHLOROBENZENE		ND	1.
100-41-4	ETHYLBENZENE		ND	1.
100-42-5	STYRENE		ND	1.
95-47-6	TOTAL XYLENES		ND	1.
108-41-8	M-CHLOROTOLUENE		ND	1.
541-73-1	1,3-DICHLOROBENZENE		ND	1
106-46-7	1,4-DICHLOROBENZENE	•	ND	1.
95-50-1	1,2-DICHLOROBENZENE		ND	1.
120-82-1	1, 2, 4-TRICHLOROBENZENE		ND	1.

CLIENT:

WOODWARD CLYDE

SAMPLE:

TRIP BLANK

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

1 NONE FOUND

Woodward-Clyde Consultants



CHAIN OF CUSTODY RECORD

SHIPMENT NO .:____ PAGE OF

Duglas - Porrance PROJECT NO.: 418638

	Location	Type of Material	Method	Type of Container	Temp	Chemical	Analysis Required*
nw-1(41)A		111500	Builed	40 ml Viel	inst		8240
B		Will I	`\	40 me Vial	(8240
		!	1,	500 ml Amer			
11 0		- 4		500 Ml Ander			1 Hold
		٠,		500 nd Amber	1-1-		(AMPLE)
NE		7			 	//	
<u> </u>		1 7	ч_	500 ml Amber	1 4	1/	8240
MP Blunk	<u> </u>	11		40 ml Vinl	W-	 	10210
		ļ					
	ļ.,				 	ļ	
	<u> </u>						
	<u> </u>				 		
					<u> </u>		
		1					
	1						
	<u> </u>	 					
					 		
	ļ						
					-	 	
	į.		1	1	1	1	
			<u> </u>		 		
		<u> </u>				A +	
otal Number of	Samples Sh	nipped: 🎉	Sample	r's Signature:	Bein	Ju. L	
		ı	Sample		Bein	1 to 10 t	y Date
elinquished By C	example:	ak		Received By:	auga	lettelt	$_{\pm}$ $\frac{1/13/3}{2}$
elinquished By Signature Printed Name	non file Ruseus	ub Their	35	Received By: Signature Printed Name	auga	lettelt	7/13/3 Time
elinquished By Signature Printed Name Company W	nontie Ruidin ped Lin	ub Their	35	Received By:	auga	lettelt	$_{\pm}$ $\frac{1/13/3}{2}$
elinquished By Signature Printed Name Company W	non file Ruschen Ochens	ub Their	35	Received By: Signature Printed Name Company	auga	lettelt	7 1/13/3 Time 4:50
elinquished By Signature Printed Name Company WReason By:	non file Builder Dedresse Gesis	ub Their	35	Received By: Signature Printed Name Company Received By:	Aga Mar	lettelt garet Fal WCAS	7/13/3 Time
elinquished By Signature Printed Name Company Reason Elinquished By: Signature	nontie Buien Octure Lesis	ab Theor	35	Received By: Signature Printed Name Company	Marga	lettelt garet Fal WCAS	7 7/3/6 Time 4:50 Date
elinquished By Signature Printed Name Company Reason elinquished By: Signature Printed Name	nonfie Buiern Och Dr. R	ab Theor	35	Received By: Signature Printed Name Company Received By: Signature	nogs Mar	lettelt garet Fal WCAS	7 1/13/3 Time 4:50
elinquished By Signature Printed Name Company Welinquished By: Signature Printed Name Company	nonfie Buiern Och D. R	ab Theor	35	Received By: Signature Printed Name Company Received By: Signature Printed Name	nogs Mar	lettelt garet Fal WCAS	7 Time 4:50 Date / / Time
elinquished By Signature Printed Name Company Welinquished By: Signature Printed Name Company Reason Reason	mondie Ruiden Schwis Lysis	ab Theor	35	Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By:	aigs.	lettelt garet Fal J. WCHS	7/3/6 Time 4:50 Date // Time Date
elinquished By Signature Printed Name Company Wellinquished By: Signature Printed Name Company Reason Pelinquished By: Signature Printed Name Company Reason Pelinquished By: Signature Printed Name Company Reason Pelinquished By: Signature	nonfie Buiern Octura Lysis	ab Theor	35	Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature	aigs Mbv	lettelt garet Fal J. WCHS	7/3/6 Time 4:50 Date // Time Date
elinquished By: Signature Printed Name Company Reason elinquished By: Signature Printed Name Company Reason elinquished By: Signature Printed Name Company Printed Name Printed Name	nontie Builta C. d. 2. C. L. S. S	abe	35 14	Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Tompany Received By: Signature Printed Name	aigs May	lettelt garet Fal WCAS	7/3/6 Time 4:50 Date // Time Date
elinquished By: Signature Printed Name Company Reason elinquished By: Signature Printed Name Company Reason elinquished By: Signature Printed Name Company Printed Name Company	nontie Builta C. d. D. R L. S. S	abe	35	Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature	aigs May	lettelt garet Fal WCAS	7/3/3 Time 4:50 Date // / Time Date // /
elinquished By Signature Printed Name Company Signature Printed Name Company Reason Signature Printed Name Signature Printed Name Company Reason Reason Reason Reason Reason Reason	nonfie Builden Octions	abe	35	Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Company Company Company Company	aigs May	lettelt garet Fal WCAS	7/3/3 Time 4:50 Date // / Time Date // /
elinquished By: Signature Printed Name Company Welinquished By: Signature Printed Name Company Reason Signature Printed Name Company Reason Signature Printed Name Company Reason Signature Reason Relinquished By: Signature Reson Relinquished By:	Ruisen Buisen Octura	ab Theor	35	Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Received By: Received By: Received By: Received By: Received By: Received By:	Agos Hav	lettelt garet Fal J WCAS	
elinquished By: Signature Printed Name Company Welinquished By: Signature Printed Name Company Reason Signature Printed Name Company Reason Signature Printed Name Company Reason Signature Printed Name Company Reason Relinquished By: Signature Signature	Ruisen Buisen Octure Lysis	ab Theor	35	Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Signature Signature	Agos Hav	lettelt garet Fal WCAS	7/3/6 Time 4:50 Date // Time Date // / Time
elinquished By: Signature Printed Name Company Welinquished By: Signature Printed Name Company Reason Signature Printed Name Company Reason Signature Printed Name Company Reason Signature Reason Relinquished By: Signature Reson Relinquished By:	nonfile Builden Ochen	ab Theor	35	Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Printed Name	Marga	lettelt garet Fal J WCAS	
elinquished By: Signature Printed Name Company Welinquished By: Signature Printed Name Company Reason Signature Printed Name Company Reason Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reson Relinquished By: Signature Printed Name	Ruisen Buisen Octura Lysis	ab Theor	35	Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Printed Name	Marga	lettelt garet Fal J WCAS	7/3/6 Time 4:50 Date // Time Date // / Time
elinquished By: Signature Printed Name Company Reason elinquished By: Signature Printed Name Company Reason elinquished By: Signature Printed Name Company Reason telinquished By: Signature Printed Name Company Reason telinquished By: Signature Printed Name Company Reason	Ruiden Buiden Octura	abe	35	Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company	Marga	lettelt garet Fal J WCAS	7/3/6 Time 4:50 Date // Time Date // / Time
elinquished By Signature Printed Name Company Wassen Printed Name Company Reason Reaso	Runch Cold Cold Cold Cold Cold Cold Cold Cold	abe	35	Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company	Marga	lettelt garet Fal J WCAS	7/3/6 Time 4:50 Date // Time Date // / Time
elinquished By Signature Printed Name Company Wassen Printed Name Company Reason Printed Name Company Reason Reason Relinquished By: Signature Printed Name Company Reason Reason Relinquished By: Signature Printed Name Reason Relinquished Reason Reason Relinquished Reason Rea	Runch Cold Cold Cold Cold Cold Cold Cold Cold	abe	35	Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company	Marga	lettelt garet Fal J WCAS	7/3/6 Time 4:50 Date // Time Date // / Time

November 11, 1987

WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Brian Jacobs

JOB NO. 7621



ANALYTICAL CHEMIST

LABORATORY REPORT

Samples Received: Four (4) water samples in duplicate

Date Received: 11-2-87

Purchase Order No: Proj: 87418630-1000/Douglas

The samples were analyzed as follows:

Results Samples Analyzed Analysis

Three waters Volatile Organics Data Sheets

by EPA 624

Fuel Hydrocarbons by Three waters modified EPA 8015 Table I

TABLE I

Parts Per Million

		Diesel		Mineral
Sample No.	<u>Gasoline</u>	<u>Fuel</u>	<u>Kerosene</u>	<u>Spirits</u>
MW-2B	ND	ND	ND	ND
MW-3B	ND	ND	ND	ND
MW-4B	ND	ND	ND	ND
Detection Limit	2	2	2	2

ND - Not Detected

Date Analyzed: 11-5-87 Page 1 of 1

Michael Shelton

Senior Chemist

D.J. Northington, Ph.D.

Technical Director

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-2A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

GCMS FILENAME: 7621V1 DATE RECEIVED: 11/02/87 WATER MATRIX: LOW LEVEL: 11/11/87 DATE ANALYZED: 11/11/87 DATE PREPARED: 5100 VOA608 INSTRUMENT ID: STANDARD ID:

SAMPLE AMOUNT: 5ML

			DETECTION
CAS #	COMPOUND	CONC: UG/L(PPB)	LIMIT
74-87-3	CHLOROMETHANE	ND	5.
74-83-9	BROMOMETHANE	N D	5.
75-01-4	VINYL CHLORIDE	ND	5.
75-00-3	CHLOROETHANE	ND	5.
75-09-2	METHYLENE CHLORIDE	ND	10
67-64-1	ACETONE	ND	
107-02-8	ACROLEIN	ND	
107-13-1	ACRYLONITRILE	N D	
75-15-0	CARBON DISULFIDE	ND	
75-35-4	1,1-DICHLOROETHENE	5.	1.
75-34-3	1,1-DICHLOROETHANE	ND	
156-60-5	TRANS-1,2-DICHLOROETHENE	. N D	
109-99-9	TETRAHYDROFURAN	ND	•
75-69-4	TRICHLOROFLUOROMETHANE	ND	
76-13-1	FREON-TF	ND	
106-93-4	ETHYLENE DIBROMIDE	ND	
123-91-1	1,4-DIOXANE	ND	
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	
67-66-3	CHLOROFORM	NE	-
107-06-2	1,2-DICHLOROETHANE	NI	
78-93-3	2-BUTANONE	NI	
71-55-6	1,1,1-TRICHLOROETHANE	5.	1.
16-23-5	CARBON TETRACHLORIDE	NI NI	
108-05-4	VINYL ACETATE	NI	
75-27-4	BROMODICHLOROMETHANE	NI	1.
79-34-5	1,1,2,2-TETRACHLOROETHANE	NI	
78-87- 5	1,2-DICHLOROPROPANE	NI	
10061-02-6	TRANS-1,3-DICHLOROPROPENE	NI	
79-01-6	TRICHLOROETHENE	14.	1.
124-48-1	CHLORODIBROMOMETHANE	NI	
79-0 0-5	1,1,2-TRICHLOROETHANE	NI	
71-43-2	BENZENE	N1	
10061-01-5	CIS-1,3-DICHLOROPROPENE	N	
110-75-8	2-CHLOROETHYLVINYLETHER	N	
75-25-2	BROMOFORM	N1	-
119-78-6	2-HEXANONE	N	
108-10-1	4-METHYL-2-PENTANONE	N	
127-18-4	TETRACHLOROETHENE	N	
108-88-3	TOLUENE	6.	1.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-2A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 11/02/87 GCMS FILENAME: 7621V1
LEVEL: LOW MATRIX: WATER
DATE PREPARED: 11/11/87 DATE ANALYZED: 11/11/87
STANDARD ID: VOA608 INSTRUMENT ID: 5100

SAMPLE AMOUNT: 5ML

CAS #	COMPOUND	CONC:	UG/L(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		N D	1.
100-41-4	ETHYLBENZENE		ND	1.
100-42-5	STYRENE		ND	1.
95-47-6	TOTAL XYLENES		ND	1.
108-41-8	M-CHLOROTOLUENE		ND	1.
541-73-1	1,3-DICHLOROBENZENE		ND	1.
106-46-7	1,4-DICHLOROBENZENE		ND	1.
95-50-1	1,2-DICHLOROBENZENE		ND	1.

CLIENT: WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: MW-2A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

1 NONE FOUND

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

7621V3 GCMS FILENAME: DATE RECEIVED: 11/02/87 WATER MATRIX: LOW LEVEL: DATE ANALYZED: 11/11/87 11/11/87 DATE PREPARED: 5100 INSTRUMENT ID: STANDARD ID: **VOA608**

SAMPLE AMOUNT: 5UL

74-87-3 CHLOROMETHANE ND 5. 74-83-9 BROMOMETHANE ND 5. 75-01-4 VINYL CHLORIDE ND 5. 75-00-3 CHLOROETHANE ND 5. 75-09-2 METHYLENE CHLORIDE ND 10. 67-64-1 ACETONE ND 10. 107-02-8 ACROLEIN ND 10. 107-13-1 ACRYLONITRILE ND 10. 75-15-0 CARBON DISULFIDE	CAS #	COMPOUND	CONC:	UG/ML(PPM)	DETECTION LIMIT
74-83-9 BROMOMETHANE ND 5. 75-01-4 VINYL CHLORIDE ND 5. 75-00-3 CHLOROETHANE ND 5. 75-09-2 METHYLENE CHLORIDE ND 10. 67-64-1 ACETONE ND 10. 107-02-8 ACROLEIN ND 10. 107-13-1 ACRYLONITRILE ND 10. 75-15-0 CARBON DISULFIDE ND 1.	CAS †		======	=========	
74-83-9 BROMOMETHANE ND 5. 75-01-4 VINYL CHLORIDE ND 5. 75-00-3 CHLOROETHANE ND 5. 75-09-2 METHYLENE CHLORIDE ND 10. 67-64-1 ACETONE ND 10. 107-02-8 ACROLEIN ND 10. 107-13-1 ACRYLONITRILE ND 10. 75-15-0 CARBON DISULFIDE ND 1.	74-87-3	CHIOROMETHANE		ND	
75-01-4 VINYL CHLORIDE ND 5. 75-00-3 CHLOROETHANE ND 5. 75-09-2 METHYLENE CHLORIDE ND 10. 67-64-1 ACETONE ND 10. 107-02-8 ACROLEIN ND 10. 107-13-1 ACRYLONITRILE ND 10. 75-15-0 CARBON DISULFIDE				ND	5.
75-00-3 CHLOROETHANE ND 5. 75-09-2 METHYLENE CHLORIDE ND 10. 67-64-1 ACETONE ND 10. 107-02-8 ACROLEIN ND 10. 107-13-1 ACRYLONITRILE ND 10. 75-15-0 CARBON DISULFIDE ND 1.				ND	5.
75-09-2 METHYLENE CHLORIDE ND 10. 67-64-1 ACETONE ND 10. 107-02-8 ACROLEIN ND 10. 107-13-1 ACRYLONITRILE ND 10. 75-15-0 CARBON DISULFIDE ND 1.				ND	5.
67-64-1 ACETONE ND 10. 107-02-8 ACROLEIN ND 10. 107-13-1 ACRYLONITRILE ND 10. 75-15-0 CARBON DISULFIDE ND 1.				ND	
107-02-8 ACROLEIN ND 10. 107-13-1 ACRYLONITRILE ND 10. 75-15-0 CARBON DISULFIDE ND 1.				ND	
107-13-1 ACRYLONITRILE ND 10. 75-15-0 CARBON DISULFIDE ND 1.	- · ·			ND	
75-15-0 CARBON DISULFIDE ND 1.				ND	
40				ND	1.
	75-35-4	1,1-DICHLOROETHENE		38.	
75-34-3 1,1-DICHLOROETHANE ND 1.		•		ND	1.
156-60-5 TRANS-1,2-DICHLOROETHENE ND 1.				ND	1.
109-99-9 TETRAHYDROFURAN ND 1.				ND	1.
75-69-4 TRICHLOROFLUOROMETHANE ND 1.				ND	1.
76-13-1 FREON-TF ND 1.	· =			ND	1.
106-93-4 ETHYLENE DIBROMIDE ND 1.				ND	
123-91-1 1,4-DIOXANE ND 1.				ND	1.
96-12-8 1,2-DIBROMO-3-CHLOROPROPANE ND 1.		1.2-DIBROMO-3-CHLOROPROPANE		ND	1.
67-66-3 CHLOROFORM ND 1.		-		, ND	1.
107-06-2 1,2-DICHLOROETHANE ND 1.				ND	1.
78-93-3 2-BUTANONE ND 10.				ND	10.
71-55-6 1,1,1-TRICHLOROETHANE 110. 1.				110.	1.
16-23-5 CARBON TETRACHLORIDE ND 1.				ND	1.
108-05-4 VINYL ACETATE ND 5.				ND	5.
75-27-4 BROMODICHLOROMETHANE ND 1.				ND	1.
79-34-5 1,1,2,2-TETRACHLOROETHANE ND 1.			•	ND	1.
78-87-5 1,2-DICHLOROPROPANE ND 1.		1 2-DICHLOROPROPANE		ND	1.
10061-02-6 TRANS-1,3-DICHLOROPROPENE ND 1.				ND	1.
79-01-6 TRICHLOROETHENE 10. 1.	_	·		10.	1.
124-48-1 CHLORODIBROMOMETHANE ND 1.				ND	1.
79-00-5 1,1,2-TRICHLOROETHANE ND 1.				ND	1.
71-43-2 BENZENE ND 1.	·			ND	1.
10061-01-5 CIS-1,3-DICHLOROPROPENE ND 1.				ND	1.
110-75-8 2-CHLOROETHYLVINYLETHER ND 10.				ND	10.
75-25-2 BROMOFORM ND 1.				ND	1.
119-78-6 2-HEXANONE ND 5.				ND	5.
108-10-1 4-METHYL-2-PENTANONE 54. 5.				54.	5.
127-18-4 TETRACHLOROETHENE ND 1.	-			ND	1.
108-88-3 TOLUENE 80. 1.				80.	1.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

GCMS FILENAME: 7621V3 11/02/87 DATE RECEIVED: WATER LOW MATRIX: LEVEL: 11/11/87 DATE PREPARED: 11/11/87 DATE ANALYZED: INSTRUMENT ID: 5100 STANDARD ID: VOA608

SAMPLE AMOUNT: 5UL

CAS #	COMPOUND	CONC:	UG/ML(PPM)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	1.
100-41-4	ETHYLBENZENE		ND	1.
100-42-5	STYRENE		ND	1.
95-47-6	TOTAL XYLENES		ND	1.
108-41-8	M-CHLOROTOLUENE		ND	1.
541-73-1	1,3-DICHLOROBENZENE		ND	1.
106-46-7	1,4-DICHLOROBENZENE		ND	1.
95-50-1	1,2-DICHLOROBENZENE		ND	1.

CLIENT: WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: MW-3A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/ML(PPM) ------

1 NONE FOUND

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-4A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

GCMS FILENAME: 7621V2 DATE RECEIVED: 11/02/87 WATER MATRIX: LOW LEVEL: DATE ANALYZED: 11/11/87 11/11/87 DATE PREPARED: 5100 INSTRUMENT ID: STANDARD ID: VOA608

SAMPLE AMOUNT: 5ML

CAS #	COMPOUND	UG/L(PPB)	DETECTION LIMIT
	CHIOROMETHANE	 #D	5.
74-87-3 74-83-9	BROMOMETHANE	ND	5.
75-01-4	VINYL CHLORIDE	ND	5.
75-01-4 75-00-3	CHLOROETHANE	ND	5.
75-00-3 75-09-2	METHYLENE CHLORIDE	ND	10.
67-64-1	ACETONE	ND	10.
107-02-8	ACROLEIN	ND	10.
107-13-1	ACRYLONITRILE	ND	10.
75-15-0	CARBON DISULFIDE	ND	1.
75-35-4	1.1-DICHLOROETHENE	360.	1.
75-35-4 75-34-3	1,1-DICHLOROETHANE	ND	1.
156-60-5	TRANS-1,2-DICHLOROETHENE	2.	1.
109-99-9	TETRAHYDROFURAN	ND	1.
75-69-4	TRICHLOROFLUOROMETHANE	ND	1.
76-13-1	FREON-TF	ND	1.
106-93-4	ETHYLENE DIBROMIDE	ND	1.
123-91-1	1,4-DIOXANE	ND	1.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	1.
67-66-3	CHLOROFORM	2.	1.
107-06-2	1,2-DICHLOROETHANE	ND	1.
78-93-3	2-BUTANONE	ND	10.
71-55-6	1,1,1-TRICHLOROETHANE	14.	1.
16-23-5	CARBON TETRACHLORIDE	ND	1.
108-05-4	VINYL ACETATE	ND	5.
75-27-4	BROMODICHLOROMETHANE	ND	1.
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	. 1.
78-87-5	1,2-DICHLOROPROPANE	ND	1.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	1.
	TRICHLOROETHENE	700.	1.
79-01-6 124-48-1	CHLORODIBROMOMETHANE	ND	1.
	1,1,2-TRICHLOROETHANE	ND	1.
79-00-5	BENZENE	ND	1.
71-43-2	CIS-1,3-DICHLOROPROPENE	ND	1.
10061-01-5	2-CHLOROETHYLVINYLETHER	ND	10.
110-75-8		ND	1.
75-25-2	BROMOFORM	ND	5.
119-78-6	2-HEXANONE 4-METHYL-2-PENTANONE	ND	5.
108-10-1		ND ND	1.
127-18-4	TETRACHLOROETHENE	ND	1.
108-88-3	TOLUENE	שא	4.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-4A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

7621V2 DATE RECEIVED: 11/02/87 GCMS FILENAME: WATER LOW MATRIX: LEVEL: DATE PREPARED: 11/11/87 DATE ANALYZED: 11/11/87 5100 INSTRUMENT ID: STANDARD ID: VOA608

SAMPLE AMOUNT: 5ML

CAS #	COMPOUND	CONC: UG/L(PP	DETECTION B) LIMIT
108-90-7	CHLOROBENZENE	, N	D 1.
100-41-4	ETHYLBENZENE	N	D 1.
100-42-5	STYRENE	N	D 1.
95	TOTAL XYLENES	N	D 1.
1 41-8	M-CHLOROTOLUENE	N	D 1.
54 3-1	1,3-DICHLOROBENZENE	N	D 1.
10 6-7	1,4-DICHLOROBENZENE	N	D 1.
95 J-1	1.2-DICHLOROBENZENE	N	D 1.

CLIENT: WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: MW-4A

TENTATIVELY IDENTIFIED COMPOUNDS

FRACTION CONCENTRATION COMPOUND NAME UG/L(PPB) 10. VOA 1 CIS-1,2-DICHLOROETHYLENE

Data Reporting Qualifiers

- Value If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.
- ND Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.
- TR Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

		Woo	dward-(Clyde Consult	ants C	SHIPA	MENT NO.:	
	_	Ċ	HAIN OF	CUSTODY RECO		· PAGE	-	i i
			Do	ua/Ac		DATE	11 12	187
			$\mathcal{V}_{\mathcal{C}}$	418630 -				
	PROJEC	T NO.:			T	of Preservation		*
Sample Number	Location	Material		Type of Container	Temp	Chemical	Analysis	Required*
MW-2 A		Witer	Bailer	blass Viel	TEEP	DONE	182	
11 11 13				· ·	+	190	Ho BZ	
MW-3 A					+	179	and the same of th	5016
MW-4 A					1-1-1		82	
11 11 B							AND ADDRESS OF THE OWNER, WHEN PARTY AND ADDRESS.	216
mw-3RB/A		\		400	14,1			10 424
11 11/18		V	W	Ψ	W	<u> </u>	He He	216
	<u> </u>							
<u> </u>			<u> </u>					
	†							-
<i>j</i> .								
		<u> </u>						
	 							
						A CONTRACTOR OF THE CONTRACTOR		
	 	<u> </u>						
Total Number of	Samples Sh	ipped: >	. Sample	r's Signature:	Sixi	Church		
Relinquished By: Signature	0 \ 1	history		Received By:		2-41	,	Date /// 24 85
Signature Printed Name	121612	Talch	<u> </u>	Signature Printed Name_	7	TEL FRAN	2,	Time
Printed Name Company Reason		- N1.15	Z	Company	A-)			1 11116
Reason	11/1/4			Received Rv.	7	4. 7	7.0	Date
Relinquished By Signature	A Tell	2 A	=-	Received By: Signature	The	** **	7621	11/2/8
Printed Name Company	Z\ /	+K4r	14,0	Printed Name_ Company	CASTA	Low		Time
Reason	• /				·			1720
Relinquished By:				Received By:		L iteratura		Date
Signature Printed Name	and the second s			Signature Printed Name_				
Company				Company				Time
Reason				Received By:				Date
Relinquished By: Signature								_/_/_
Printed Name Printed Name						Time		
Company Reason								
Special Shipment	/ Handling	/ Storage	Requiremen	ts:			•	
`								
				o proceed with analy	/ C ! C			

DETECTION

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-1A

10061-01-5

110-75-8

75-25-2

119-78-6

108-10-1

127-18-4

108-88-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 11/13/87 GCMS FILENAME: 7761V2 LEVEL: LOW MATRIX: WATER DATE PREPARED: 11/16/87 DATE ANALYZED: 11/16/87 INSTRUMENT ID: 5101

STANDARD ID: V0A450 SAMPLE AMOUNT: 250UL

CAS #	COMPOUND	CONC:	UG/L(PPB)	DETECTION LIMIT
= = = = = = = = = = = = = = = = = = =		22242 22	拉克普拉克斯拉克斯斯	
74-87-3	CHLOROMETHANE		ND	100.
74-83-9	BROMOMETHANE		ND	100.
75-01-4	VINYL CHLORIDE		ND	100.
75-00-3	CHLOROETHANE		ND	100.
75-09-2	METHYLENE CHLORIDE		ND	200.
67-64-1	ACETONE		ND	200.
107-02-8	ACROLEIN		ND	200.
107-13-1	ACRYLONITRILE		ND	200.
75-15-0	CARBON DISULFIDE		ND	20.
75-35-4	1,1-DICHLOROETHENE		3000.	20.
75~34~3	1,1-DICHLOROETHANE		23.	20.
156~60-5	TRANS-1, 2-DICHLORDETHENE		75	20.
109-99-9	TETRAHYDROFURAN		ND	20.
75-69-4	TRICHLOROFLUOROMETHANE		ND	20.
76-13-1	FREON-TF		ND	20.
106-93-4	ETHYLENE DIBROMIDE		ND	20.
123-91-1	1,4-DIOXANE		ND	20.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	20.
67-66-3	CHLOROFORM		39.	20.
107-06-2	1,2-DICHLOROETHANE		ND	20.
78-93-3	2-BUTANONE		ND	200.
71-55-6	1, 1, 1-TRICHLOROETHANE		160.	20.
16-23-5	CARBON TETRACHLORIDE		ND	20.
108-05-4	VINYL ACETATE		ND	100.
75-27-4	BROMODICHLORDMETHANE		ND	20.
79-34-5	1, 1, 2, 2-TETRACHLOROETHANE		ND	20.
78-87-5	1,2-DICHLOROPROPANE		ND	20.
10061-02-6	TRANS-1, 3-DICHLOROPROPENE		ND	20.
79-01-6	TRICHLOROETHENE		5200.	20.
124-48-1	DIBROMOCHLOROMETHANE		ND	20.
79-00-5	1, 1, 2-TRICHLORDETHANE		ND	20. 20.
71-43-2	BENZENE		160.	20.
10061-01-5	CIQt 2-NICH ODODOOCHE			= -

CIS-1, 3-DICHLOROPROPENE

4-METHYL-2-PENTANONE

TETRACHLOROETHENE

BROMOFORM

TOLUENE

2-HEXANDNE

2-CHLOROETHYLVINYL ETHER

20.

20.

200.

100.

100.

20.

20.

ND

ND

ND

ND

ND

ND

ND

1,4-DICHLOROBENZENE

ND

20.

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-1A

106-46-7

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 11/13/87 GCMS FILENAME: 7761V2 LEVEL: LOW MATRIX: WATER DATE PREPARED: 11/16/87 DATE ANALYZED: 11/16/87 INSTRUMENT ID: STANDARD ID: VDA450 5101

SAMPLE AMOUNT: 250UL

DETECTION CAS # COMPOUND CONC: UG/L(PPB) LIMIT 108-90-7 CHLOROBENZENE ND 20. 100-41-4 ETHYLBENZENE ND 20. 100-42-5 STYRENE ND 20. 95-47-6 TOTAL XYLENES ND 20. 108-41-8 M-CHLOROTOLUENE ND 20. 20. 95-50-1 ND 1, 2-DICHLOROBENZENE 541-73-1 1.3-DICHLOROBENZENE ND 20.

CLIENT:

WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE:

WCC-1A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

1 CIS-1, 2-DICHLORGETHYLENE

VOA

200.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-ZA

ANALYSIS TYPE: EPA METHOD 8240 (624)

DRGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 11/13/87 GCMS FILENAME: 7761V4
LEVEL: LOW MATRIX: WATER
DATE PREPARED: 11/16/87 DATE ANALYZED: 11/16/87

STANDARD ID: VOA450 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 5ML

CAS #	COMPOUND	 UG/L(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE	ND	5 .
74-83-9	BROMOMETHANE	ND	5 .
75-01-4	VINYL CHLORIDE	ND	5 .
75-00-3	CHLOROETHANE	ND	5
75-09-2	METHYLENE CHLORIDE	ND	10.
67-64-1	ACETONE	ND	10.
107-02-8	ACROLEIN	ND	10.
107-13-1	ACRYLONITRILE	ND	10.
75-15-0	CARBON DISULFIDE	ND	1.
75-35-4	1,1-DICHLOROETHENE	2.	1.
75-34-3	1,1-DICHLOROETHANE	ND	1.
154-60-5	TRANS-1, 2-DICHLOROETHENE	ND	1.
109-99-9	TETRAHYDROFURAN	ND	1.
75-69-4	TRICHLOROFLUOROMETHANE	ND	1.
76-13-1	FREON-TF	ND	1.
106-93-4	ETHYLENE DIBROMIDE	ND	1.
123-91-1	1,4-DIOXANE	ND	1.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	1.
67-66-3	CHLOROFORM	ND	1.
107-06-2	1,2-DICHLOROETHANE	ND	1.
78-93-3	2-BUTANONE	MD	10.
71-55-6	1, 1, 1-TRICHLOROETHANE	ND	1.
16-23-5	CARBON TETRACHLORIDE	ND	1.
108-05-4	VINYL ACETATE	ND	5.
75-27-4	BROMODICHLOROMETHANE	ND	1.
79-34-5	1, 1, 2, 2-TETRACHLORGETHANE	ND	1.
78-87-5	1,2-DICHLOROPROPANE	ND	1.
10061-02-6	TRANS-1, 3-DICHLOROPROPENE	ND	1.
79-01-6	TRICHLOROETHENE	4.	1,
124-48-1	DIBROMOCHLOROMETHANE	ND	1.
79-00-5	1, 1, 2-TRICHLORDETHANE	ND	1.
71-43-2	BENZENE	ND	1.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	1.
110-75-8	2-CHLOROETHYLVINYL ETHER	ND	10.
75-25-2	BROMOFORM	ND	1.
119-78-6	2-HEXANDNE	ND	5 .
108-10-1	4-METHYL-2-PENTANONE	ND	5.
127-18-4	TETRACHLOROETHENE	ND	1.
108-88-3	TOLUENE	1.	1.

776174

WATER

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE

SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-2A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 11/13/87 GCMS FILENAME:

LEVEL: LOW MATRIX:

DATE PREPARED: 11/16/87 DATE ANALYZED: 11/16/87 STANDARD ID: VOA450 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 5ML

CAS # COMPOUND CONC: UG/L(PPB) LIMIT

CAS # COMPOUND CONC: OG/E(FPS) LIMIT

108-90-7	CHLOROBENZENE	ND	1.				
100-41-4	ETHYLBENZENE	ND	1.				
100-42-5	STYRENE	ND	i .				
95-47-6	TOTAL XYLENES	ND	1.				
108-41-8	M-CHLOROTOLUENE	ND	1.				
95-50-1	1,2-DICHLOROBENZENE	ND	1.				
541-73-1	1.3-DICHLOROBENZENE	ND	1.				
106-46-7	1,4-DICHLOROBENZENE	ND	1.				

CLIENT:

WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: WCC-2A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

1 NONE FOUND

CLIENT:

WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE:

WCC-SA

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

11/13/87

GCMS FILENAME:

776176

LEVEL:

MEDIUM

MATRIX:

WATER

DATE PREPARED:

11/17/87

DATE ANALYZED:

11/17/87

STANDARD ID:

V0A451

INSTRUMENT ID:

5101

SAMPLE AMOUNT:

5UL

DETECTION

CAS # COMPOUND

CONC: UG/ML(PPM) LIMIT

22.00mm 22.00mm 22.00mm 22.00mm 22.00mm 22.00mm 22.00mm 22.00mm 22.00mm 22.00mm 22.00mm 22.00mm 22.00mm 22.00mm	· 20 的 对 " 20 的 " 20 的 " 20 的 " 20 的 20 的 20 的 2	알보다 또 또 또 또 후 중 중 중 경 설 및 및 및 약 약	
74-87-3	CHLOROMETHANE	ND	5 .
74-83-9	BROMOMETHANE	ND	5 .
75-01-4	VINYL CHLORIDE	ND	5 .
75-00-3	CHLOROETHANE	ND	5
75-09-2	METHYLENE CHLORIDE	D	10.
67-64-1	ACETONE	ND	10.
107-02-8	ACROLEIN	ND	10.
107-13-1	ACRYLONITRILE	ND	10.
75-15-0	CARBON DISULFIDE	ND	1.
75-35-4	1,1-DICHLOROETHENE	8 8. •	1.
75-34-3	1, 1-DICHLOROETHANE	1. •	1.
156-60-5	TRANS-1, 2-DICHLORDETHENE	1.	1.
109-99-9	TETRAHYDROFURAN	ND	1.
75-69-4	TRICHLOROFLUOROMETHANE	ND	1.
76-13-1	FREON-TF	ДИ	1.
106-93-4	ETHYLENE DIBROMIDE	ND	1.
123-91-1	1.4-DIDXANE	ND	1.
96-12-8	1.2-DIBROMO-3-CHLOROPROPANE	ND	1.
67-66-3	CHLOROFORM	ND	1.
107-06-2	1.2-DICHLOROETHANE	O. TR	1.
78-93-3	2-BUTANONE	5. TR	10.
71-55-6	1,1,1-TRICHLOROETHANE	54 .	1.
16-23-5	CARBON TETRACHLORIDE	ND.	1.
108-05-4	VINYL ACETATE	ND	5 .
75-27-4	BROMODICHLOROMETHANE	ND	1.
79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	ND	1.
78-87-5	1,2-DICHLOROPROPANE	ND	1.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	1.
79-01-6	TRICHLOROETHENE	11.	1.
124-48-1	DIBROMOCHLOROMETHANE	ND	1.
7 9 -00-5	1, 1, 2-TRICHLORDETHANE	ND	1.
71-43-2	BENZENE	ND	1.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	1.
110-75-8	2-CHLOROETHYLVINYL ETHER	ND	10.
75-25-2	BROMOFORM	ND	1.
119-78-6	2-HEXANONE	ND	5 .
108-10-1	4-METHYL-2-PENTANONE	70. ·	5 .
127-18-4	TETRACHLORDETHENE	ND	1.
108-88-3	TOLUENE	140.	1.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-3A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: GCMS FILENAME: 11/13/87 776176 LEVEL: MEDIUM MATRIX: WATER DATE PREPARED: 11/17/87 DATE ANALYZED: 11/17/87 STANDARD ID: VDA451 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 5UL

CAS #	СОМРОИНО	CONC:	UG/ML(PPM)	DETECTION LIMIT
	* # # # & # # # # # # # # # # # # # # #	11 	\$\$ 66 15 16 16 16 16 16 16 16 16 16 16 16 16 16	
108-90-7	CHLOROBENZENE		ND	1.
100-41-4	ETHYLBENZENE		ND	1.
100-42-5	STYRENE		ND	1.
95-47-6	TOTAL XYLENES		ND	1.
108-41-8	M-CHLOROTOLUENE		ND	1. ·
95-50-1	1, 2-DICHLOROBENZENE		ND	1.
541-73-1	1,3-DICHLOROBENZENE		ND	1.
104-44-7	1.4-DICHLOROBENZENE		ND	1

CLIENT: WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: WCC-3A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/ML(PPM)

1 NONE FOUND

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

WCC-4A SAMPLE:

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 11/13/87 GCMS FILENAME: 776178 LEVEL: LOW MATRIX: WATER

DATE PREPARED: 11/17/87 DATE ANALYZED: 11/17/B7 5101

STANDARD ID: VDA451 INSTRUMENT ID: SAMPLE AMOUNT: 500UL

DETECTION LIMIT CAS # COMPOUND CONC: UG/L(PPB)

CHS #	CUMPUVND	CONC: OG/L(PPB/	F TLIT I
	s 型 对作作的 计分析 计算 特性 联合 医抗乳乳素 美国 新疆 的 医自体		
		,	
74-87-3	CIU CONCTIANO	a. cus.	pro 34,
74-87-3 74-83-9	CHLOROMETHANE BROMOMETHANE	ND	5 0.
75-01-4	VINYL CHLORIDE	ND	50. 50.
75-01-4	CHLOROETHANE	ND ND	50. 50.
75-00-3 75-09-2	METHYLENE CHLORIDE	ND ND	100.
67-64-1	ACETONE	ND ND	100.
107-02-8	ACROLEIN	ND	100.
107-13-1	ACRYLONITRILE	ND	100.
75-15-0	CARBON DISULFIDE	ND	100.
75-35-4	1,1-DICHLOROETHENE	1200.	10.
75-35- - 75-34-3	1,1-DICHLORDETHANE	ND	10.
156-60-5	TRANS-1, 2-DICHLOROETHENE	ND	10.
109-99-9	TETRAHYDROFURAN	ND	10.
75-69-4	TRICHLOROFLUOROMETHANE	ND ND	10. 10.
76-13-1	FREON-TF	ND	10.
106-93-4	ETHYLENE DIBROMIDE	ND	10. 10.
123-91-1	1.4-DIOXANE	ND	10.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	N D	10.
67-66-3	CHLOROFORM	ND	10.
107-06-2	1,2-DICHLOROETHANE	ND ND	10.
78-93-3	2-BUTANONE	ND ND	100.
71-55-6	1.1.1-TRICHLDROETHANE	35.	
16-23-5	CARBON TETRACHLORIDE		10.
108-05-4	VINYL ACETATE	ND ND	10. 50.
75-27-4	BROMODICHLOROMETHANE		10.
79-34-5		ND	10.
79-34-5 78-87-5	1,1,2,2-TETRACHLORDETHANE 1,2-DICHLOROPROPANE	ND ND	10.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND ND	10.
79-01-6	TRICHLOROETHENE		10.
124-48-1	DIBROMOCHLOROMETHANE	690.	10. 10.
79-00-5	1,1,2-TRICHLOROETHANE	ND ND	10. 10.
71-43-2	BENZENE	ND ND	10.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND ND	10.
110-75-8	2-CHLOROETHYLVINYL ETHER	ND ND	10. 100.
75-25-2	BROMOFORM	ND	10.
119-78-6	2-HEXANONE	ND	50.
108-10-1	4-METHYL-2-PENTANONE	ND	50. 50.
127-18-4	TETRACHLOROETHENE	ND	10.
108-88-3	TOLUENE	ND ND	10.
100-00-3	IULVENE	นุม	10.

CLIENT:

WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE:

WCC-4A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

11/13/87

GCMS FILENAME:

776178

LEVEL:

LOW

MATRIX:

WATER

DATE PREPARED:

11/17/87

DATE ANALYZED:

11/17/87

STANDARD ID:

V0A451

INSTRUMENT ID:

5101

SAMPLE AMOUNT:

500UL

CAS #

COMPOUND

CONC: UG/L(PPB)

DETECTION LIMIT

108-90-7	CHLOROBENZENE	ND	10.				
100-41-4	ETHYLBENZENE	ND	10.				
100-42-5	STYRENE	ND	10.				
95-47-6	TOTAL XYLENES	ND	10				
108-41-8	M-CHLOROTOLUENE	ND	10.				
95-50-1	1,2-DICHLOROBENZENE	ND	10.				
541-73-1	1.3-DICHLOROBENZENE	ND	10.				
106-46-7	1.4-DICHIOROBENZENE	NT	10				

CLIENT: WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: WCC-4A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

NONE FOUND

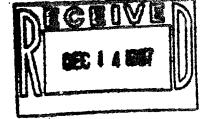
VDA

Data Reporting Qualifiers

- Value If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.
- ND Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.
- TR Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

Woodward-Clyde Consultants shipment No.:							:	
	_	С	HAIN OF	CUSTODY RECO	ORD	PAGE.		
			H	Douglas	1:00	CAP DATE	111	327
		CT NAME:_	_	22.406.3	<u> -{} ((</u>	Tarex		
	PROJE	CT NO.:	-	3741863	-			
Sample Number	Location	Type of Material	Sample Method	Type of Container	Type Temp	of Preservation Chemical	Analysi	s Required*
WCC-1A -		Water	Bailes	. Hoss Val	ICEO	NONE	9	240)
1 11 B						1		Hold
WCC - ZA -	ļ				1-1-1		<u> </u>	3240 V
11 11 16	<u> </u>				1			14016
(nuc 13	<u> </u>				1-1-		-	35-10
1' 11 3					1-/		ļ.,	Held
Mco - 1/17	<u> </u>				11		-	0240
" IN C	 	$ \mathcal{U} $	<u> </u>	<u>'</u>	10	<u> </u>	-	H-16
	 				 		-	
							10.	1
					1		111	15 []
	ļ						'	
					+		 	
	<u> </u>			•	<u> </u>		1	
							<u> </u>	
							1	
							†	
					 		†	
					1 /	,	1	
Total Number of S	Samples Shi	pped: S	Sampler	's Signature:	ACIA W	us	1	
Relinquished By: () 、	1 1		Received By:	2 4.1	. //		Date
Signature	Slyen	110		Signature	Cana	#77	61	11/13/2
Printed Name Company	300 dwa	16 -01	coles mode	Printed Name Company	MS NS	Love -		Time_
ReasonA	nelysi							5:50
Relinquished By:	***************************************			Received By:				Date
Signature Printed Name								//
Company								Time
Reason							****	
Relinquished By:				Received By:				Date
Signature Printed Name				Signature Printed Name				
Company								Time
Reason								
Relinquished By:				Received By:				, Date
Signature Printed Name								
Company				_ Company				Time
Reason								L
Special Shipment	Handling	/ Storage R	equirements	5 :				l
* Note - This do	es not cons	stitute auth	orization to	proceed with analys	is			
	55 ,,00 00113	autili	S.I.LUCIOTE (U	E. 00000 Territ undigs		***************************************	LA	A/OR = 0183 = 421

December 11, 1987



WEST COAST ANALYTICAL SERVICE, INC.

ANALYTICAL CHEMIS"

10 3 E - 10 Y - 15 TO - 15 TO - 15 TO - 15 TO - 15 TO - 15 TO - 15 TO - 15 TO - 15 TO - 15 TO - 15 TO - 15 TO -

WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Allistaire Callendar

JOB NO. 7911

LABORATORY REPORT

Samples Received: Three (3) liquid samples

Date Received: 11-30-87

Purchase Order No: Proj: 8741863D-1000

The samples were analyzed as follows:

Samples Analyzed Ana

<u>Analysis</u>

Results

One water

Fuel Hydrocarbons

by modified EPA 8015

Table I

One water

Volatile Organics

by EPA 8240

Data Sheets

TABLE I

Parts Per Million

Sample No.	<u>Gasoline</u>	Diesel <u>Fuel</u>	<u>Kerosene</u>	Mineral Spirits
WCC-5A Detection Limit	ND	ND	ND	ND
	2	2	2	2

ND - Not Detected

Date Analyzed: 12-10-87

Page 1 of 1

James Bonde Senior Chemist

D. J. Northington, Ph. D.

Technical Director

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-5A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 12/01/87 GCMS FILENAME: 7911V1 LEVEL: LOW MATRIX: WATER DATE PREPARED: 12/09/87 DATE ANALYZED: 12/09/87 STANDARD ID: VOA626 INSTRUMENT ID: 5100

SAMPLE AMOUNT: 5ML

CAS #	СОМРОИИД	CONC:	UG/L(PPB)	DETECTION LIMIT
67-64-1	ACETONE		ND	10.
107-02-8	ACROLEIN		ND	10.
107-13-1	ACRYLONITRILE		ND	10.
71-43-2	BENZENE		ND	1.
75-27-4	BROMODICHLOROMETHANE		ND	1.
75-25-2	BROMOFORM		ND	1.
74-83-9	BROMOMETHANE		ND	5.
78-93-3	2-BUTANONE (MEK)		ND	10.
75-15-0	CARBON DISULFIDE		ND	1.
16-23-5	CARBON TETRACHLORIDE		ND	1.
108-90-7	CHLOROBENZENE		ND	1.
75-00-3	CHLOROETHANE		ND	5.
110-75-8	2-CHLOROETHYLVINYLETHER		ND	10.
67-66-3	CHLOROFORM		ND	1.
74-87-3	CHLOROMETHANE		ND	5.
108-41-8	M-CHLOROTOLUENE		ND	1.
124-48-1	DIBROMOCHLOROMETHANE		ND	1.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
95-50-1	1,2-DICHLOROBENZENE		ND	1.
541-73-1	1,3-DICHLOROBENZENE		ND	1.
106-46-7	1,4-DICHLOROBENZENE		ND	1.
75-34-3	1,1-DICHLOROETHANE		ND	1.
107-06-2	1,2-DICHLOROETHANE		ND	1.
75-35-4	1,1-DICHLOROETHYLENE		7.	1.
156-60-5	TRANS-1,2-DICHLOROETHYLENE		ND	1.
78-87-5	1,2-DICHLOROPROPANE		ND	1.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	1.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	1.
123-91-1	1,4-DIOXANE		ND	20.
100-41-4	ETHYLBENZENE		ND	1.
106-93-4	ETHYLENE DIBROMIDE		ND	1.
76-13-1	FREON-TF		ND	1.
119-78-6	2-HEXANONE		ND	5.
75-09-2	METHYLENE CHLORIDE		ND	10.
108-10-1	4-METHYL-2-PENTANONE (MIBK)		ND	5.
100-42-5	STYRENE		ND	1.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	1.
127-18-4	TETRACHLOROETHYLENE		ND	1.
109-99-9	TETRAHYDROFURAN		ND	1.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-5A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 12/01/87 GCMS FILENAME: 7911V1 LEVEL: LOW MATRIX: WATER DATE PREPARED: 12/09/87 DATE ANALYZED: 12/09/87 STANDARD ID: INSTRUMENT ID: VOA626 5100

SAMPLE AMOUNT: 5ML

CAS #	COMPOUND	CONC:	UG/L(PPB)	DETECTION LIMIT
108-88-3	TOLUENE		1.	1 .
71-55-6	1,1,1-TRICHLOROETHANE		ND	1.
79-00-5	1,1,2-TRICHLOROETHANE		ND	1.
79-01-6	TRICHLOROETHYLENE		3.	1.
75-69-4	TRICHLOROFLUOROMETHANE		ND	1.
108-05-4	VINYL ACETATE		ND	5.
75-01-4	VINYL CHLORIDE		ND	5.
95-47-6	TOTAL XYLENES		ND	1.

CLIENT:

WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: WCC-5A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

1 NONE FOUND

VOA

Data Reporting Qualifiers

- Value If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.
- ND Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.
- TR Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

Woodward-Clyde Consultants SHIPMENT NO .:___ PAGE_/_OF_ CHAIN OF CUSTODY RECORD DATE 1217 187 PROJECT NAME: 1000 PROJECT NO .: _ Type of Preservation Type of Sample Analysis Required* Type of Container Location Sample Number Temp Chemical Method Material NONE 8240,8015 NCC-5A V Glass Vial Witze FLED Hold 4016 Total Number of Samples Shipped: 3 Sampler's Signature: Received By: Relinquished By: 4118: Signature_ Signature_ Printed Name 41 EN 16 Printed Name Time Company_ Company__ 12:45 Reason_ Date Received By: Relinquished By: > Signature_ Signature_ Printed Name P North, Con Printed Name Company COPHS INC -Company_ Reason_ Date Received By: Relinquished By: Signature_ Signature_ Printed Name_ Printed Name_ Time Company_ Company___ Reason____ Date Received By: Relinquished By: Signature_ Signature. Printed Name_ Printed Name_ Time Company___ Company_ Special Shipment / Handling / Storage Requirements:

* Note — This does not constitute authorization to proceed with analysis

in the second section of the second section

The will be the

BOE-C6-0091958

LA/OR-0183-421

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-5A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 01/08/88 GCMS FILENAME: 8253V1 LEVEL: LOW MATRIX: WATER DATE PREPARED: 01/12/88 DATE ANALYZED: 01/12/88 STANDARD ID: **VOA484** INSTRUMENT ID: 5101

SAMPLE AMOUNT: 5ML

CAS #	COMPOUND	CONC	UG/L(PPB)	DETECTION LIMIT
======================================			=========	DIMII
67-64-1	ACETONE		ND	10.
107-02-8	ACROLEIN		ND	10.
107-13-1	ACRYLONITRILE		ND	10.
71-43-2	BENZENE		ND	1.
75-27-4	BROMODICHLOROMETHANE		ND	1.
75-25-2	BROMOFORM		ND	1.
74-83-9	BROMOMETHANE		ND	5.
78-93-3	2-BUTANONE (MEK)		ND	10.
75-15-0	CARBON DISULFIDE		ND	1.
16-23-5	CARBON TETRACHLORIDE		ND	1.
108-90-7	CHLOROBENZENE		ND	1.
75-00-3	CHLOROETHANE		ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	10.
67-66-3	CHLOROFORM		ND	1.
74-87-3	CHLOROMETHANE		ND	5.
108-41-8	M-CHLOROTOLUENE		ND	1.
124-48-1	DIBROMOCHLOROMETHANE		ND	1.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
95-50-1	1,2-DICHLOROBENZENE		ND	1.
541-73-1	1,3-DICHLOROBENZENE		ND	1.
106-46-7	1,4-DICHLOROBENZENE		ND	1.
75-34-3	1,1-DICHLOROETHANE		ND	1.
107-06-2	1,2-DICHLOROETHANE		ND	1.
75-35-4	1,1-DICHLOROETHYLENE		4.	1.
156-60-5	TRANS-1,2-DICHLOROETHYLENE		ND	1.
78-87-5	1,2-DICHLOROPROPANE		ND	1.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	1.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	1.
123-91-1 100-41-4	1,4-DIOXANE		ND	20.
106-93-4	ETHYLBENZENE		ND	1.
76-13-1	ETHYLENE DIBROMIDE FREON-TF		ND	1.
119-78-6	2-HEXANONE		ND	1.
75-09-2	METHYLENE CHLORIDE		ND	5.
108-10-1	4-METHYL-2-PENTANONE (MIBK)		ND	10.
100-42-5	STYRENE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND ND	1. 1.
127-18-4	TETRACHLOROETHYLENE		ND.	1.
109-99-9	TETRAHYDROFURAN		ND	1.
	and the state of t		1110	. •

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-5A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

01/08/88 DATE RECEIVED: GCMS FILENAME: 8253V1 LEVEL: LOW MATRIX: WATER DATE PREPARED: 01/12/88 DATE ANALYZED: 01/12/88 STANDARD ID: INSTRUMENT ID: VOA484 5101

SAMPLE AMOUNT: 5ML

CAS #	COMPOUND	CONC: UG/L(PPB	DETECTION LIMIT
108-88-3	TOLUENE	ND	1.
71-55-6	1,1,1-TRICHLOROETHANE	ND	1.
79-00-5	1,1,2-TRICHLOROETHANE	ND	1.
79-01-6	TRICHLOROETHYLENE	10.	1
75-69-4	TRICHLOROFLUOROMETHANE	ND	1.
108-05-4	VINYL ACETATE	ND	5.
75-01-4	VINYL CHLORIDE	ND	5.
95-47-6	TOTAL XYLENES	ND	1.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-5A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION
UG/L(PPB)

CIS-1,2-DICHLOROETHYLENE

VOA

4.

Data Reporting Qualifiers

- Value If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.
- ND Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.
- TR Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

·		C	HAIN OF	CUSTODY	RECO	RD)F	
			0	15/AS	Λ .	cref	DAT	E 1/	88 8	
	PROJE	CT NAME:						E		
	PROJE	CT NO.:	ج ح	2011/20	<u> </u>	(c	<u>60</u>		•	
Camala Namahan	1	Type of	Sample	T.,		Type	of Preservation	Analy	ysis Required*	
Sample Number	Location	Material	Method	Type of Cor	itainer	Temp	Chemical	Allaly	/sis nequired	
wcc-5A		viter	Dailer	Glass	Vial	lod	Nove	6	3240	
11 liB		٠,	Ų	٠,		٧,	()		Dup.	_
Trench-1A		Sil	Grab	Brass	Tube	14	L		301 <i>5</i>	
11 11 -1B			در			N.	ч.		ωp.	_
										_
										_
										_
							<u></u>			
								.		_
							· · · · · · · · · · · · · · · · · · ·			
										_
	ļ									_
										_
										_
										_
										_
								_		
Total Number of S	Samples Sh	ipaed:	Sampler	's Signature:	(Serem	Mos			MONTH OF
Relinquished By:	2	(a. X	ر	Received E Signature	BY: 1/4.	. Per	1. 2 2. (2)		Date	
Signature Printed Name	Brian	Taco	5	Signature Printed N		110 20	e culati		- <u>(/ &/</u> E	₹ 9 2
Company	och con	1-016A	. — — — — — — — — — — — — — — — — — — —	Company		CITTA	K		Time	
ReasonAu		7				ره د ۱۰			11:45	P
Relinquished By:				Received E	•				Date	
Signature									- //_	_]
Printed Name Company				Printed Name					Time	7
Reason				_						_]
Relinquished By:				Received E	By:				Date	
Signature									- _ / /_	_
Printed Name Company				3					Time	7
Reason										_
Relinquished By:				Received E	3y:	· · · · · · · · · · · · · · · · · · ·			Date	
Signature				Signature	·				- <u> </u>	_
Printed Name									Time	7
Company Reason				Company					-	_
Special Shipment				s:						
	-	_								
							#82	53		
								- -		
* Note — This do	es not con	stitute auth	orization to	proceed with	analysi	S				لِي
									LA/OR-0183-4	+ 4 1

Woodward-Clyde Consultants

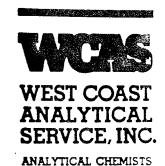
SHIPMENT NO .:

December 31, 1986

WOODWARD-CLYDE 203 No. Golden Circle Drive Santa Ana, CA 92705

Attn: Kevin Gibson

JOB NO. 4932



LABORATORY REPORT

Samples: Two (2) soil samples Date Received: 12-29-86

Purchase Order No: Project 41863B

The samples were analyzed for total petroleum hydrocarbon content using EPA method 418.1. The results are listed below:

Parts Per Million

Sample No.

Total Petroleum Hydrocarbons

10

B2-2-3 at 5' 5000 6000 B2-7-3 at 30' Detection Limit

Date Analyzed: 12-30-86

Page 1 of 1

Isabella Gundran Chemist

D.J. Northington, Ph.D. Technical Director

9840 Alburtis Avenue • Santa Fe Springs, California 90670 • 213 948-2225

Woodward-Clyde Consultants



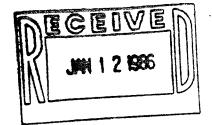
SHIPMENT NO .:_

CHAIN OF CUSTODY RECORD

PAGE____OF___

PROJECT NAME: Douglas Chieraft C6 DATE 12 1291 86

	PROJEC	CT NO.:	{/-	41863B		······································		
Sample Number	Location	Type of Material	Sample Method	Type of Container	Type o	f Preservation Chemical	Analysis R	equired *
	B2		CAMOD	BUNSSTUBE	100			
	B2 /	SOIL	2,7 7.00	DICKS TUBE	100			>
BZ-1-4			(/		404	0
	ļ				(
32-2-3	5'	 	 		$-\lambda$	▼040×1° ♥ = ±444×1 = 1000° 1000° 1000° 1000° 1000° 1000° 1000° 1000° 1000° 1000° 1000° 1000° 1000° 1000° 1000°	ELA.	
32-2-4					\vdash	2 × 14 × 14 × 14 × 14 × 14 × 14 × 14 × 1	Ho	<u> D</u>
<u> </u>	ļ	 }-			 			
BL-3-3	10'	 	 				Hor	1
<u> </u>					+		11.	
Bz-4-3	. /				 \ 		11.	
Bz 4-4	15				1		House	2
Bz 5·3	/						HOL	
BZ 5-4	20					·	1,	
B2 7-3	30'					······································	FPA 9	118.10
	2.							=
BZ 6-4	7,					······································		045
	3 - 1	Ţ.	7				EPN	4/4
BZ 7-4	20		į.			^ •	HOLD +	
Total Number of S	THE RESERVE THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO	pped: 12	Sampler'	s Signature:	uns le	2 115	Busin	
Relinquished By:		97	_	Received By: Signature		0 6(1		Date
Signature	Ken a	1-180		Signature Printed Name	$\frac{EUU}{3}$	1 E WKGK	<u>[``</u>	125 19
Company	CC		×~	Company	JCAS			Time
Reason	7857	~ C	water the second second second second second second second second second second second second second second se				<u> </u>	5:20
Relinquished By:				Received By:				Date
Signature Printed Name				Signature Printed Name				
				Company				
Company								Time
Reason								
ReasonRelinquished By:				Received By:				Date
· · ·				Received By: Signature				Date /
Reason				Received By:				
Reason				Received By: Signature Printed Name Company				Date / / Time
Reason				Received By: Signature Printed Name Company Received By:				Date /
Reason				Received By: Signature Printed Name Company				Date / / Time Date /
Reason				Received By: Signature Printed Name Company Received By: Signature			·	Date / / Time
Reason				Received By: Signature Printed Name Company Received By: Signature Printed Name Company				Date / / Time Date / Time
Reason	Handling	Storage • F	lequirements	Received By: Signature Printed Name Company Received By: Signature Printed Name Company				Date / / Time Date /
Reason	Handling	Storage·F	lequirements	Received By: Signature Printed Name Company Received By: Signature Printed Name Company	, our	until		Date / / Time Date / Time
Reason	Handling	Storage·F	lequirements	Received By: Signature Printed Name Company Received By: Signature Printed Name Company	, our	until		Date / / Time Date / Time



January 9, 1987

WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Kevin Gibson

JOB NO. 4968



ANALYTICAL CHEMISTS

LABORATORY REPORT

Samples: Nineteen (19) soil samples

Date Received: 1-6-87 Purchase Order No: 41863B

Ten (10) samples were analyzed for total petroleum hydrocarbons by EPA method 418.1. The results are reported below:

Parts Per Million

Sample.No.	Total Petroleum Hydrocarbons
2.7.4	14000
2-7-4	14000
2-8-4	2000
2- 9-4	20 00
2-10-4	19000
3-1-4	29 00
3-2-4	27
3-3-4	1200
3-4-4	4400
3- 5-3	13000
3- 6-3	4100
Detection Limit	10

Date Extracted: 1-8-87 Date Analyzed: 1-8-87

Page 1 of 1

Isabelle Gundran

Chemist.

D.J. Northington, Ph.D. Technical Director

Woodward-Clyde Consultants SHIPMENT NO .:_____ PAGE_____OF_____ CHAIN OF CUSTODY RECORD DATE 1 16187 DOUGLAS ARCRAFT PROJECT NAME:___ 418630 #4968 PROJECT NO.:____ Type of Preservation Type of Sample Analysis Required * Type of Container Sample Number Location Chemical Material Method Temp BARSTUGE 2-7-3 B-2 154 Soil EPA. 4181. 2-7-4 418.1, TPOL Hous 418.1 TPAC 418,17PHC 13-3 place. 418.1 TPMC HOLD 418.1 TPHE HOLD 3-3-3 418. TPice 3-3-4 Mico. 3-4-3 418.1 TPHC 3-4-4 Hora 3-5-2 4.8.1 TPHIC 3-5-43 Proco 3-6-2 JISI TPIL 3-6-3 the workless, Sampler's Signature: Total Number of Samples Shipped: Date Relinquished By: Received By: 11618 Signature____ Signature_ Printed Name ____ Printed Name_ Time Company_ Company___ 41500 TESTING Reason_ Date Relinquished By: Received By: Signature_ Signature_ Printed Name_ Printed Name_ Time Company____ Company___ Reason_ Date Received By: Relinquished By: Signature_ Signature Printed Name_ Printed Name___ Company___ Company_ Reason ____ Date Received By: Relinquished By: Signature_ Signature_ Printed Name ____ Printed Name___ Time Company___ Company_ Reason __ Special Snipment , Handling , Storage Requirements

* Note — This does not constitute authorization to proceed with analysis

LA OR-0183-421

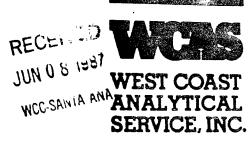
June 5, 1987

WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Allistaire Callendar

JOB NO. 6039

Sample No.



ANALYTICAL CHEMISTS

LABORATORY REPORT

Samples: Seventeen (17) soil samples

Date Received: 5-27-87
Purchase Order No: 41863B

Nine (9) soil samples were analyzed for total petroleum hydrocarbon content using EPA Method 418.1. The results are on Table I.

Table I

Parts Per Million

10

Total Petroleum Hydrocarbon

B-4-1-2	ND
B-4-2-2	15000
B-4-3-2	44000
B-4-4-2	8200
B-4-5-2	28000
B-4-6-2	6000
B-4-7-2	1500
B-4-9-2	16000
B-4-10-2	ND

ND - Not Detected

Detection Limit:

Date Analyzed: 6-4-87

Page 1 of 1

Isabelle Gundran Analytical Chemist

D.J. Northington, Ph.D. Technical Director

Woodward-Clyde Consultants



	•	. (CHAIN OF	CUSTODY REC	ORD	PAGE	OF_	1
	PROJE	CT NAME:	DUCLA	CARCOAFT		DATE	5126	61 8 6
PROJECT NAME: DUGLAS AIR CRAFT DATE 5 /26/86 PROJECT NO.: 418638								
_								
Sample Number	Location	Material	Sample Method	Type of Container	Type Temp	of Preservation	Analysis	Required *
B-41-2 -	-B-4	Soil	BOR NY	BEASS TUBE		Chemical	- A-	M + 4 12 2
3-4-1-3 -	FI	1		1	100	7078	1	PROMINEO
8-4-2-2	-				+		1	USTARG
LR-4-2-3-	-				 		COLEN	
8-4-3-2					 		(714) b:	35-6886
B-4-3-3-					 			
3-4-4-2-					╁╼╁╼┤		<u> </u>	
B-4-4-3-					 			
B-4-5-2 -	-				† † †			
8-9-5-3-	-				 			
B-4-6-2-					 			
B-4-6-3-	-				╁╌╂╌┤			
B-4-7-2-	-				1 1			
B-9-7-3 -	-				╂╌╂╌┤			· · · · · · · · · · · · · · · · · · ·
8-4-9-2	-				 			
6-9-10-2 -					+-+-			
B-4-D-3 -	. •	V	J		+ 1			

					1			
					 			
Total Number of S	amples Ship	ped: 17	Sampler'	Signature:	lan			
Relinquished By:	2/ 1.0			Received By:			<u> </u>	
Signature				_ Signature	lands	Meman	les 1	Date 5/27/8
Printed Nam	1000	GUASA	IONSUTAVI	Printed Name				
Reason_ For	Temple		LABORATO		mond	CTAGE COMIN	ttarts	Time
				Received By:			_	1: P.M
Relinquished By:	ude la	mande	3	_ Signature	ranes	Felt		Date
Printed Name Of Company Of Company	ヒノみひのの	WFDII	130W	Printed Name / Margaret Felt				
Reason Delive	Y for	Anali	5/5 -	Company		# 600		Time
Relinquished By:		1000 100 100 100 100 100 100 100 100 10		Received By:		7003	9	<u>1630</u>
Signature				Signature			1	Date
Printed Name				Printed Name				
Company Reason				Company				Time
Relinquished By:				- Passived D				
Signature				Received By: Signature				Date
Printed Name				. Printed Name				
Company Reason				. Company				Time
Reason	Handling /	Storage Pr	Ollitemeet	-1				
		Clorage ne	.quirements.					
* Note - This does	not const	itute autho	rization to (proceed with analysis				

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 15TB-3-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

6926V1 GCMS FILENAME: 08/24/87 DATE RECEIVED: SOIL MATRIX: LEVEL: LOW 09/01/87 DATE ANALYZED: DATE PREPARED: 09/01/87 INSTRUMENT ID: 5101 VOA397 STANDARD ID:

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		ND.	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE		ND	30.
75-00-3	CHLOROETHANE		ND	30.
75-09-2	METHYLENE CHLORIDE		ND	5 0.
67-64-1	ACETONE		N .D	50.
107-02-8	ACROLEIN		N D	50.
107-13-1	ACRYLONITRILE		ND	50.
75-15-0	CARBON DISULFIDE		ND	5.
75-35-4	1,1-DICHLOROETHENE		18.	5.
75-34-3	1,1-DICHLOROETHANE		ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		N D	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		N D	5.
107-06-2	1,2-DICHLOROETHANE		N D	5.
78-93-3	2-BUTANONE		ND	50.
71-55-6	1,1,1-TRICHLOROETHANE		570.	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	. 5.
78-87-5	1,2-DICHLOROPROPANE		N D	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5.
79-01-6	TRICHLOROETHENE		ND	5.
124-48-1	DIBROMOCHLOROMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		ND	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		56.	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 15TB-3-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V1 LEVEL: LOW MATRIX: SOIL DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87 STANDARD ID: VOA397 INSTRUMENT ID: 5101

STANDARD ID: VOA39 SAMPLE AMOUNT: 1.0G

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	5.
100-41-4	ETHYLBENZENE		11.	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		110.	5
108-41-8	M-CHLOROTOLUENE		ND	5.
95-50-1	1,2-DICHLOROBENZENE		ND	5.
541-73-1	1,3-DICHLOROBENZENE		ND	5.
106-46-7	1,4-DICHLOROBENZENE		ND	5.

CLIENT: WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: 15TB-3-3

TENTATIVELY IDENTIFIED COMPOUNDS

FRACTION CONCENTRATION COMPOUND NAME UG/KG(PPB)

1 CHLORINATED HYDROCARBONS

VOA

300.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 15TB-4-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V7 LEVEL: SOIL MEDIUM MATRIX: DATE PREPARED: 09/01/87 09/01/87 DATE ANALYZED: STANDARD ID: VOA397 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 1.0G:1ML,200UL:1ML,5

CAS #	COMPOUND	CONC:	UG/G(PPM)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		ND	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE		ND	30.
75-00-3	CHLOROETHANE		ND	30.
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND	50.
107-02-8	ACROLEIN		ND	50.
107-13-1	ACRYLONITRILE		ND	50.
75-15-0	CARBON DISULFIDE		ND	5.
75-35-4	1,1-DICHLOROETHENE		ND	5.
75-34-3	1,1-DICHLOROETHANE		ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND -	5.
123-91-1	1,4-DIOXANE		ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		ND	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		160.	50.
71-55-6	1,1,1-TRICHLOROETHANE		27.	5.
16-23-5	CARBON TETRACHLORIDE		N D	5.
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78- 87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5.
79-01-6	TRICHLOROETHENE		10.	5.
124-48-1	DIBROMOCHLOROMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	, 5.
71-43-2	BENZENE		ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		ND	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		870.	5.

CLIENT: WOODWARD-CLYDE

SITE: DOUGLAS AIRCRAFT

SAMPLE: 15TB-4-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V7
LEVEL: MEDIUM MATRIX: SOIL

LEVEL: MEDIUM MATRIX: SOIL
DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87

STANDARD ID: VOA397 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 1.0G:1ML,200UL:1ML,5

CAS #	COMPOUND	conc:	UG/G(PPM)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	5.
100-41-4	ETHYLBENZENE		41.	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		460.	5
108-41-8	M-CHLOROTOLUENE		ND	5.
95-50-1	1,2-DICHLOROBENZENE		ND	5.
541-73-1	1,3-DICHLOROBENZENE	•	ND	5.
106-46-7	1,4-DICHLOROBENZENE		ND	5.

CLIENT: WOODWARD-CLYDE

SITE: DOUGLAS AIRCRAFT SAMPLE: 15TB-4-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/G(PPM)

1 NONE FOUND

VOA

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 15TB-5-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V8
LEVEL: MEDIUM MATRIX: SOIL
DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87

STANDARD ID: VOA397 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 1.0G:1ML,100UL:1ML,5

CAS #	COMPOUND	CONC:	UG/G(PPM)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		N D	50.
74-83-9	BROMOMETHANE		ND	50.
75-01-4	VINYL CHLORIDE		ND	50.
75-00-3	CHLOROETHANE		ND	50
75-09-2	METHYLENE CHLORIDE	`	ND	100.
67-64-1	ACETONE		ND	100.
107-02-8	ACROLEIN		ND	100.
107-13-1	ACRYLONITRILE		N D	100.
75-15-0	CARBON DISULFIDE		ND	10.
75-35-4	1,1-DICHLOROETHENE		ND	10.
75-34-3	1,1-DICHLOROETHANE		ND	10.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	10.
109-99-9	TETRAHYDROFURAN		ND	10.
75-69-4	TRICHLOROFLUOROMETHANE		ND	10.
76-13-1	FREON-TF		ND	10.
106-93-4	ETHYLENE DIBROMIDE		ND	10.
123-91-1	1,4-DIOXANE		ND	10.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	10.
67-66-3	CHLOROFORM		ND	10.
107-06-2	1,2-DICHLOROETHANE		ND	10.
78-93-3	2-BUTANONE		1800.	100.
71-55-6	1,1,1-TRICHLOROETHANE		38.	10.
16-23-5	CARBON TETRACHLORIDE		ND	10.
108-05-4	VINYL ACETATE		ND	50.
75-27-4	BROMODICHLOROMETHANE		ND	10.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	10.
78-87-5	1,2-DICHLOROPROPANE		ND	10.
10061-02-6	·		ND	10.
79-01-6	TRICHLOROETHENE		94.	10.
124-48-1	DIBROMOCHLOROMETHANE		ND	10.
79-00-5	1,1,2-TRICHLOROETHANE		ND	10.
71-43-2	BENZENE		ND	10.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	10.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	100.
75-25-2	BROMOFORM		ND	10.
119-78-6	2-HEXANONE		ND	50.
108-10-1	4-METHYL-2-PENTANONE		ND	50.
127-18-4	TETRACHLOROETHENE		ND	10.
108-88-3	TOLUENE		6300.	10.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 15TB-5-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V8 LEVEL: MEDIUM MATRIX: SOIL

DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87 STANDARD ID: VOA397 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 1.0G:1ML,100UL:1ML,5

CAS #	COMPOUND	conc: u	G/G(PPM)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	10.
100-41-4	ETHYLBENZENE		180.	10.
100-42-5	STYRENE	•	ND	10.
95-47-6	TOTAL XYLENES		1300.	10.
108-41-8	M-CHLOROTOLUENE		ND	10.
95-50-1	1,2-DICHLOROBENZENE		ND	10.
541-73-1	1,3-DICHLOROBENZENE		ND	10.
106-46-7	1,4-DICHLOROBENZENE		ND	10.

CLIENT: WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: 15TB-5-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/G(PPM)

1 NONE FOUND

VOA

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-2-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

GCMS FILENAME: DATE RECEIVED: 08/24/87 6926V2 MATRIX: SOIL LEVEL: LOW 09/01/87 DATE ANALYZED: DATE PREPARED: 09/01/87 INSTRUMENT ID: 5101 **VOA397** STANDARD ID:

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
		======		
74-87-3	CHLOROMETHANE		ND	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE		ND	30.
75-00-3	CHLOROETHANE		ND	30.
75 - 09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND	50.
107-02-8	ACROLEIN		ND	50.
107-13-1	ACRYLONITRILE		ND	50.
75-15-0	CARBON DISULFIDE		ND	5.
75-35-4	1,1-DICHLOROETHENE		ND	5.
75-34-3	1,1-DICHLOROETHANE		ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	. <u>5</u> .
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		N D	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		ND	50.
71-55-6	1,1,1-TRICHLOROETHANE		ND	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND -	5.
78-87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5.
79-01-6	TRICHLOROETHENE		ND	5.
124-48-1	DIBROMOCHLOROMETHANE		N D	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		ND	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		ND	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-2-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: GCMS FILENAME: 6926 3 08/24/87 LEVEL: LOW MATRIX: SOIL 09/01/87 DATE ANALYZED: DATE PREPARED: 09/01/87 5101 INSTRUMENT ID: STANDARD ID: **VOA397**

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	5.
100-41-4	ETHYLBENZENE		ND	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		ND	5.
108-41-8	M-CHLOROTOLUENE		ND	5.
95-50-1	1,2-DICHLOROBENZENE		ND	5.
541-73-1	1,3-DICHLOROBENZENE		ND	5.
106-46-7	1 4-DICHLOROBENZENE		ND	5.

CLIENT: WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: 17TB-2-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/KG(PPB)

1 NONE FOUND

VOA

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-3-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V3 LEVEL: LOW MATRIX: SOIL DATE ANALYZED: 09/01/87 DATE PREPARED: 09/01/87 INSTRUMENT ID: 5101 STANDARD ID: **VOA397**

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMI
74-87-3	CHLOROMETHANE		. N D	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE		ND	30.
75-00-3	CHLOROETHANE		ND	30.
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND	50.
107-02-8	ACROLEIN		ND	50.
107-13-1	ACRYLONITRILE		ND	5 0 .
75-15-0	CARBON DISULFIDE		ND	77* 15 -
75-35-4	1,1-DICHLOROETHENE		ND	5.
75-34-3	1,1-DICHLOROETHANE		ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5
67-66-3	CHLOROFORM		ND	
107-06-2	1,2-DICHLOROETHANE		ND	:
78-93-3	2-BUTANONE		ИD	5 <u>0</u> .
71-55-6	1,1,1-TRICHLOROETHANE		36.	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87- 5	1,2-DICHLOROPROPANE		ND	₩.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	
79-01-6	TRICHLOROETHENE		ND	
124-48-1	DIBROMOCHLOROMETHANE		ND	Š.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		ND	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		8.	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-3-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

GCMS FILENAME: 6926V3 DATE RECEIVED: 08/24/87 LEVEL: LOW MATRIX: SOIL DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87 STANDARD ID: **VOA397** INSTRUMENT ID: 5101

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	5.
100-41-4	ETHYLBENZENE		ND	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		ND	5
108-41-8	M-CHLOROTOLUENE		ND	5.
95-50-1	1,2-DICHLOROBENZENE		ND	7.7
541-73-1	1,3-DICHLOROBENZENE		ND	W. *
106-46-7	1,4-DICHLOROBENZENE		ND	5.

CLIENT: WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: 17TB-3-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/KG(PPB)

1 NONE FOUND

VOA

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-5-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V4 LEVEL: LOW MATRIX: SOIL DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87 STANDARD ID: **VOA397** INSTRUMENT ID: 5101

				DETECTION
CAS #	COMPOUND	CONC:	UG/KG(PPB)	LIMI
74-87-3	CHLOROMETHANE		ND	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE		ND	30.
75-00-3	CHLOROETHANE		ND	30
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		N D	50.
107-02-8	ACROLEIN		ND	50.
107-13-1	ACRYLONITRILE		ND	5 0.
75-15-0	CARBON DISULFIDE		ND	5.
75-35-4	1,1-DICHLOROETHENE		ND	5.
75-34-3	1,1-DICHLOROETHANE		ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5
76-13-1	FREON-TF		ND	
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		14.	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		ND	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		ND	50.
71-55-6	1,1,1-TRICHLOROETHANE		13.	5.
16-23-5	CARBON TETRACHLORIDE		ND	5,
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5.
79-01-6	TRICHLOROETHENE		ND	5.
124-48-1	DIBROMOCHLOROMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		N D	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		ND	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		7.	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-5-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

GCMS FILENAME: DATE RECEIVED: 08/24/87 6926V4 LEVEL: MATRIX: SOIL LOW DATE PREPARED: DATE ANALYZED: 09/01/87 09/01/87 INSTRUMENT ID: 5101 STANDARD ID: **VOA397**

CAS #	COMPOUND	CONC: UG/KG(PP	DETECTION B) LIMIT
108-90-7	CHLOROBENZENE	ND	5.
100-41-4	ETHYLBENZENE	ND	5.
100-42-5	STYRENE	NI	5.
95-47-6	TOTAL XYLENES	NI	5
108-41-8	M-CHLOROTOLUENE	NI	5
95-50-1	1,2-DICHLOROBENZENE	NI	5.
541-73-1	1,3-DICHLOROBENZENE	NI	5.
106-46-7	1,4-DICHLOROBENZENE	NI	5.

CLIENT:

WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE:

17TB-5-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/KG(PPB)

1 1,3-DIOXOLANE

VOA

600.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-7-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: GCMS FILENAME: 08/24/87 6926V11 LEVEL: MEDIUM MATRIX: SOIL DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87 INSTRUMENT ID: STANDARD ID: VOA397 5101

SAMPLE AMOUNT: 1.0G:1ML,200UL:1ML,5

			DETECTION
CAS #	COMPOUND	CONC: UG/G(PPM)	LIMIT
74-87-3	CHLOROMETHANE	. ND	30.
74-83-9	BROMOMETHANE	ND	30.
75-01-4	VINYL CHLORIDE	N D	30.
75-00-3	CHLOROETHANE	N D	30.
75-09-2	METHYLENE CHLORIDE	ND	5 0 .
67-64-1	ACETONE	N D	50.
107-02-8	ACROLEIN	ND	50.
107-13-1	ACRYLONITRILE	ND	50.
75-15-0	CARBON DISULFIDE	ND	5.
75-35-4	1,1-DICHLOROETHENE	ND	5.
75-34-3	1,1-DICHLOROETHANE	ЙD	5.
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	5.
109-99-9	TETRAHYDROFURAN	ND	5.
75-69-4	TRICHLOROFLUOROMETHANE	ND	5.
76-13-1	FREON-TF	ND	5.
106-93-4	ETHYLENE DIBROMIDE	ND	5.
123-91-1	1,4-DIOXANE	ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	5
67-66-3	CHLOROFORM	ND	5.
107-06-2	1,2-DICHLOROETHANE	ND	5.
78-93-3	2-BUTANONE	810.	50.
71-55-6	1,1,1-TRICHLOROETHANE	ND	5.
16-23-5	CARBON TETRACHLORIDE	ND	5.
108-05-4	VINYL ACETATE	ND	30.
75-27-4	BROMODICHLOROMETHANE	ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND.	5.
78-87-5	1,2-DICHLOROPROPANE	ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	5.
79-01-6	TRICHLOROETHENE	ND	5.
124-48-1	DIBROMOCHLOROMETHANE	ND	5.
79-00-5	1,1,2-TRICHLOROETHANE	ND	5. ·
71-43-2	BENZENE	ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER	ND	50.
75-25-2	BROMOFORM	ND	5.
119-78-6	2-HEXANONE	ND	30.
108-10-1	4-METHYL-2-PENTANONE	840.	30.
127-18-4	TETRACHLOROETHENE	ND	
108-88-3	TOLUENE	ND	

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-7-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V11 LEVEL: MEDIUM MATRIX: SOIL DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87 STANDARD ID: VOA397 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 1.0G:1ML,200UL:1ML,5

CAS #	COMPOUND	CONC:	UG/G(PPM)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	5.
100-41-4	ETHYLBENZENE		ND	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		ND	5.
108-41-8	M-CHLOROTOLUENE		ND	5.
95-50-1	1,2-DICHLOROBENZENE		N D	5.
541-73-1	1,3-DICHLOROBENZENE		ND	5.
106-46-7	1,4-DICHLOROBENZENE		ND	5.

CLIENT: WOODWARD-CLYDE

SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-7-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/G(PPM)

1 NONE FOUND

VOA

Data Reporting Qualifiers

- Value If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.
- ND Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.
- TR Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

Woodward-Clyde Consultants



CHAIN OF CUSTODY RECORD

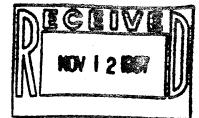
SHIPMENT NO.: 3 PAGE_/ OF Z DATE 8 124 87

PROJECT NAME: DOUGLAS AIR COAFT

PROJECT NO .: 874/863C- 1080

		cation	Mai	terial	Me	thod	1,,,,,	Container	Tem	Type of Preservation Temp Chemical		Analysis Required		
CTR -1- (15	18	ادی		Mor		anse	TUBE	KE		NO		CON	Text
576-l-3 578-2-3	+=	<u> </u>	00	<u> </u>	+	-1F.		<u> </u>		十				TAIRE
576-3-3	+	1	1	 		<u> </u>			11			8240	T	BURR
51B- 1 -3		 	\vdash		1	 			11			I)		-835-688
	 _	 	 	 	1				† †	_		/1		
57B - 5-3	-	 	 	╂	\vdash	 		 	++	\dashv				
578 - 6-3	+	 	┼	┼─	 	}	 		+-+	_				
578-7-3	+-	ļ	┼	╁	╁	 			++	_			 	
578-8-3	+	,	├	+	┼	-	 		+ +				 	
578-7-3	+-		┼	╂—	 	 		 	+-+	-			-	
7TB-1-3	417	TB	├	-	┼		-		+			901/2	 	
78-2-3		 	 		-	<u> </u>	 		+	-		8240	 	
778-3-3	_	 	-	-	 	L							 	
<u>778-4-3</u>	1	↓	 	-	-		 		4				 	
776-5-3			<u> </u>	<u> </u>			ļ					8240	<u> </u>	
7TB - 6-3		<u> </u>	 					<u> </u>						
778-7-3								<u> </u>				8240	 	
1778-8-3			1		<u> </u>									·
718-7-3	V	•			<u>.</u>									
19TW-1-3	1	77.)	T					1	1 1	1 1	i		1	
		10	1	•	1 .	L	1	l						
111W-Z-3 Total Number of	Sam	0		_			Recei	ved By:	slon					Date
/17W-Z-3 Fotal Number of	Sam	ples St	aı	Ris	tro	~	Receir Sign Prin		Slon G. K U.C.			692	3	1
Frinted Name Company Reason	Sam	ples St	aı	Ris	tro	~	Receir Sign Prin Con	ved By: latureted Name		TY NS	el em	892°	3	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
The Indian India	Sam	ples St	aı	Ris	tro	~	Receir Sign Prin Con Recei	ved By: nature ted Name npany ved By: nature	he			892°		- 8/24/ Time
Tw-z-3 Total Number of Relinquished By: Signature Company Reason Relinquished By: Signature Printed Name By: Signature Printed Name	Sam	ples St	aı	Ris	tro	~	Receir Sign Prin Con Receir Sign Prin	ved By: nature ted Name ved By: nature ted Name	Lace			692 ⁽	3	Silvey
Tw-z-3 Total Number of Relinquished By: Signature A Printed Name Company Reason Relinquished By: Signature Signature	Sam	ples St	aı	Ris	tro	~	Receir Sign Prin Con Receir Sign Prin	ved By: nature ted Name npany ved By: nature	Lace			892		- 8/24/ Time
Frinted Name_ Relinquished By: Signature_ Printed Name_ Company_ Reason_ Relinquished By: Signature_ Printed Name_ Company_ Reason_ Reason_	Sam	ples St	aı	Ris	tro	~	Receir Sign Prin Con Recei Sign Prin Cor	ved By: nature ted Name ved By: nature ted Name	Lace			692°	3	Time 1805
Frinted Name_ Relinquished By: Signature_ Printed Name_ Company_ Reason_ Relinquished By: Signature_ Printed Name_ Company_ Reason_ Reason_	Sam	ples St	ar Ma	his EF	ro-	7.500	Recei Sign Con Recei Sign Prin Cor Recei	ved By: nature ved By: nature ted Name npany ved By: nature npany ved By:	had			892	3	Sil 24 Time 1805 Date / Time
Total Number of Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name	Sam	ples St		his EF	tro	7300	Recei Sign Con Recei Sign Prin Cor Recei Sign Recei Sign Prir Cor	ved By: nature ved By: nature nature npany ved By: nature_ npany_ ved By: nature_ n	laci				3	Time Bos Date Time Date Jose Jo
Total Number of Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company_ Printed Name Company_	Sam	ples St		his EF	tro	7300	Recei Sign Con Recei Sign Prin Cor Recei Sign Recei Sign Prir Cor	ved By: nature ved By: nature ted Name npany ved By: nature npany ved By:	laci				3	Sil 24 Time 1805 Date Time Date
Total Number of Relinquished By: Signature Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Reason Relinquished By: Signature Printed Name Reason Reaso	Sam	ples St		his EF	tro	7300	Receir Sign Prin Con Receir Sign Prin Con Receir Sign Prin Con Con Receir Sign Prin Con	ved By: nature ved By: nature npany ved By: nature npany ved By: nature npany ved By: nature npany	lack				3	Sil 24 Time 1805 Date / Time
Total Number of Relinquished By: Signature A Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Re	Sam	ples St			tropic s	7300	Recei Sign Con Recei Sign Prin Cor Recei Sign Prir Cor Recei Recei	ved By: nature ved By: nature nature npany ved By: nature_ npany_ ved By: nature_ n						Time Date / Time Time
Total Number of Relinquished By: Signature A Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Printed Name Printed Name Printed Name Printed Name Printed Name	Sam	ples St			tropies,	7300	Recei Sign Prin Con Recei Sign Prir Cor Recei Sign Prir Cor Recei Sign Prir Cor	ved By: nature npany ved By: nature npany ved By: nature npany ved Name_ npany ved By: nature npany ved By: nature npany ved By: nature npany					3	Time Date / Time Date / Time
Total Number of Relinquished By: Signature A Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Reason Relinquished By: Signature Signature Signature Reason Relinquished By:	Sam	ples St			tropies,	7300	Recei Sign Prin Con Recei Sign Prir Cor Recei Sign Prir Cor Recei Sign Prir Cor	ved By: nature npany ved By: nature npany ved By: nature npany ved Name npany ved By: nature npany ved By: nature npany						Time Date / Time Time

November 10, 1987



WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Allistair Callendar

JOB NO. 7592



LABORATORY REPORT

Samples Received: Twenty-five (25) soil & four (4) water samples

Date Received: 10-29-87

Released for Analysis: 11-4-87

Purchase Order No: Proj: 8741863D-1000/Douglas Aircraft

The samples were analyzed as follows:

Samples Analyzed Analysis

Volatile Organics

MW-3-2-3 & MW-3-3-3 by EPA 8240

Data Sheets

Results

Page 1 of 1

Michael Shelton Senior Chemist

D.J. Northington, Ph.D. Technical Director

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3-2-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 10/29/87 GCMS FILENAME: 7592V1 LEVEL: LOW MATRIX: SOIL DATE PREPARED: 11/10/87 DATE ANALYZED: 11/10/87 INSTRUMENT ID: 5100 STANDARD ID: **VOA607**

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		ND	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE		ND	30.
75-00-3	CHLOROETHANE		ND	30.
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND	50.
107-02-8	ACROLEIN		ND	50.
107-13-1	ACRYLONITRILE		N D	50.
75-15-0	CARBON DISULFIDE		ND	5.
75-35-4	1,1-DICHLOROETHENE		53.	5.
75-34-3	1,1-DICHLOROETHANE		98.	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		ND	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		ND	5 0.
71-55-6	1,1,1-TRICHLOROETHANE		70.	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5.
79-01-6	TRICHLOROETHENE		ND	5.
124-48-1	CHLORODIBROMOMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		N D	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	, 5.
110-75-8	2-CHLOROETHYLVINYLETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		ND	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		590.	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3-2-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 10/29/87 GCMS FILENAME: 7592V1 LEVEL: LOW MATRIX: SOIL DATE PREPARED: 11/10/87 DATE ANALYZED: 11/10/87

STANDARD ID: VOA607

SAMPLE AMOUNT: 1.0G

CAS #	сомроино	CONC:	UG/KG(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	5.
100-41-4	ETHYLBENZENE		ND	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		ND	5.
108-41-8	M-CHLOROTOLUENE		ND	5.
541-73-1	1,3-DICHLOROBENZENE		ND	5.
106-46-7	1,4-DICHLOROBENZENE		ND	5.
95-50-1	1.2-DICHLOROBENZENE		. ND	5.

INSTRUMENT ID:

5100

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3-2-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME FRACTION CONCENTRATION

UG/KG (PPB)

1 NONE FOUND

VOA

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3-3-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 10/29/87 GCMS FILENAME: 7592V2 LEVEL: LOW MATRIX: SOIL DATE PREPARED: 11/10/87 DATE ANALYZED: 11/10/87 STANDARD ID: VOA607 INSTRUMENT ID: 5100

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		ND	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE		ND	30.
75-00-3	CHLOROETHANE		ND	30.
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND	5 0.
107-02-8	ACROLEIN		ND	50.
107-13-1	ACRYLONITRILE		ND	50.
75-15-0	CARBON DISULFIDE		N D	5.
75-35-4	1,1-DICHLOROETHENE		ND	5.
75-34-3	1,1-DICHLOROETHANE		ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		ND	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		ND	50.
71-55-6	1,1,1-TRICHLOROETHANE		ND	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		N D	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5.
79-01-6	TRICHLOROETHENE		ND	5.
124-48-1	CHLORODIBROMOMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		ND	. 5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYLETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		310.	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		8.	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3-3-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 10/29/87 GCMS FILENAME: 7592V2 LEVEL: LOW MATRIX: SOIL DATE PREPARED: 11/10/87 DATE ANALYZED: 11/10/87 STANDARD ID: VOA607 INSTRUMENT ID: 5100

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	5.
100-41-4	ETHYLBENZENE		ND	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		ND	5.
108-41-8	M-CHLOROTOLUENE		ND	5.
541-73-1	1,3-DICHLOROBENZENE		ND	5.
106-46-7	1,4-DICHLOROBENZENE		ND	5.
95-50-1	1,2-DICHLOROBENZENE	•	ND	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3-3-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME FRACTION CONCENTRATION UG/KG(PPB)

1 NONE FOUND VOA

Data Reporting Qualifiers

- Value If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.
- ND Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.
- TR Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.



		C	HAII		_ RECO	RD	PAGE_	OF_	<u></u>
	BB 0 15 0	T 11445	120	-las	Aircre	l.H	DATE	10129	7,87
		T NAME:_ T NO.:	8	7418	The state of the s	- 100	<u></u>		
Sample Number	Location	Type of		Type of	Container	Type Temp	of Preservation Chemical	Analysis	Required*
MW-2-2-4		Material Soil	Method CMS	Brass	s Tube	ICEO	NONE	1 4	0/3
11 11 3-3	(3)	1			1				I Alik
1, 4 11 - 4									1 and
11 44-3					<u> </u>				1-3
11 4-4		1.1	<u> </u>		<u> </u>	4		<u> </u>	
1WMW-4/2A		Water	Grub	PIN	& Vial				(2, 1)
11 11 B		 				1-1-1		1	- (//4) -
IN IN B	 				1 77			1 3	
			<u> </u>						
									`
			<u> </u>	<u> </u>					
`		<u> </u>	<u> </u>			ļ			
•		<u> </u>							
		ļ .	<u> </u>						
	ļ			 					
				 					
			I .						
-	-	 		<u> </u>		+-7			
Total Number of	Samples 8h	upped: 2	G Sample	r's Signati	ure: B1	News of	auc's		
The second secon	$C \subset I$	1	4 Sample	r's Signati	ure:	reurs	aug 8		Date
Relinquished By: Signature	Sun	116/2		Recei Sign	ved By	News of	tue 8		Date (C) (24 / E).
Relinquished By: Signature Printed Name	Suin	Tobash	·	Recei Sigr Prin	ved By nature nted Name	MA STATE	Fanukl:		10/24/83 Time
Relinquished By: Signature Printed Name	Suin	116/2	·	Recei Sigr Prin	ved By	New 15	Fanukl:		10154183
Relinquished By: Signature Printed Name Company Reason Relinquished By	Sun A	Tobash	·	Recei Sigr Prir Cor	ved By hature inted Name mpany	A EL	Fanoklis #7	592	(C/29/8) Time 4.20/
Relinquished By: Signature Printed Name Company Reason Relinquished By Signature	Sun of	Taril	·	Recei Sigr Prir Cor	naturented Namented By:	Fig.	Farinkling #7	592	Time 4.201 Date 10:29:6
Relinquished By: Signature Printed Name Company Reason Relinquished By Signature Printed Name	Sing	Tobash	·	Recei Sigr Prir Cor	naturented Namented By:	Fig.	Farinkling #7	592	Time 4.201 Date 10:29:0
Relinquished By: Signature Printed Name Company Reason Relinquished By Signature	Sing	Taril	·	Recei Sigr Prir Cor	naturented Namented By:	Fig.	Fanoklis #7	592	Time 4.201 Date 10:29:6 Time 1745
Relinquished By: Signature Printed Name Company Reason Relinquished By Signature Printed Name Company Reason Relinquished By:	Suit of Suit o	Trail Trail Trail Trail Trail	iyác w	Recei Sigr Prir Cor Recei Sigr Prir Cor	nature	MEL.	Farinkling #7		Time 4.201 Date 10:29:0
Printed Name	Sun of Su	Jack Control of the sand	iyác w	Recei Sigr Prir Cor Sigr Prir Cor Recei Sigr Prir Cor Sigr Prir Sigr Sigr Sigr Sigr Sigr Sigr Sigr S	ved By: nature nted Name nature nature nted Name mpany ived By: ived By: inature	MEL.	Farinkling #7		Time 4.201 Date 10:29:6 Time 17:45 Date
Relinquished By: Signature Printed Name Company Reason Relinquished By Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company	Sin of Si	Torish Torish Teanth	iyác iyác	Recei Sign Prin Cor Recei Sign Prin Cor Rece Sign Prin Cor Rece Sign Prin Rece	ved By: nature ived By: nature inted Name mpany ived By: ived By: ived By: inted Name ived By: inted Name inted Name	MEL.	Farinkling #7		Time 4.201 Date 10:29:6 Time 1745
Relinquished By: Signature Printed Name Company Reason Relinquished By Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason	Sin A	Torish Torish Teanth	iyác iyác	Recei Sigr Prir Cor Cor Rece Sigr Prir Cor Cor Cor Cor Cor Cor Cor Cor Cor Co	ved By: nature_ mpany_ ived By: nature_ mpany_ ived Name mpany_ ived By: nature_ mpany_ ived Name_ mpany_	MEL.	Farinkling #7		Time 4.201 Date 10'29' 6 Time 1745 Date 1 1
Relinquished By: Signature Printed Name Company Reason Relinquished By Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By:	Sin A	Tarilla Contraction	liyde 	Recei Sigr Prir Cor Cor Rece Sigr Prir Cor Cor Rece Sigr Prir Cor Cor Cor Cor Cor Cor Cor Cor Cor Co	ved By: nature_ mpany_ ived By: nature_ mpany_ ived By: ived By: ived By: mature_ mpany_ ived Name_ mpany_ ived Name_ mpany_ ived By:	MEL.	Farinkling #7		Time 4.201 Date 10:29:6 Time 17:45 Date
Relinquished By: Signature Printed Name Company Reason Relinquished By Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature	Sin A	Taril Teant	iyác w	Recei Sigr Prir Cor Cor Rece Sigr Prir Cor Cor Cor Cor Cor Cor Cor Cor Cor Co	ved By: nature_ nted Name_ nature_ nted Name nted Name mpany_ ived By: nature_ nted Name_ mpany_ ived By: nature_ nted Name_ mpany_ ived By: nature_ mpany_	MEL.	Farinkling #7		Time 4.201 Date 10'29'6 Time 1745 Date 1 Time
Relinquished By: Signature Printed Name Company Reason Relinquished By Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By:	Sin A	Track Market	liyde.	Recei Sign Prir Cor Recei Sign Prir Cor Rece Sign Prir Cor Rece	ved By: nature_ nted Name_ nature_ nted Name_ nted Name_ mpany_ ived By: nature_ nted Name_ mpany_ ived By: nature_ nted Name_ mpany_ ived By: nature_ nted Name_	MEL.	Fanuklis #7 For		Time 4.201 Date 10:29:8 Time 7745 Date / / / Time Date